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for review.

OBSERVATIONS

ON THE

CONNEXION BETWEEN

FAMINE AND FEVER IN IRELAND,

AND ELSEWHERE.

BY

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"But, as all insight into the Works of Nature must be preceded by a strict investigation and search after phenomena in all countries, at all times, and under all circumstances of development, so an improved knowledge of diseases, and of the whole human system, will not fail to follow, when the investigation of Epidemics, throughout extensive periods, have increased in number and success.—(*Hecker's Epidemics of the Middle Ages.*)

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P R E F A C E.

CIRCUMSTANCES lately led me to inquire into some points in the natural history of Fever. While so engaged, a pamphlet came under my notice, the first part of the title of which is: "On Famine and Fever, as Cause and Effect in Ireland." The author—Dr. Corrigan—is well known as an able writer, and his opinions are entitled to every consideration. In the present instance, however, views have been advocated which, to say the least of them, are very open to discussion, and will, I believe, have to be materially modified before they can be received. It will be seen that I have not hesitated to criticise these views freely—very freely. The nature of the question discussed called for a strict scrutiny into the facts; particularly as to their sequence. The truth, I knew, wherever it lay, could not suffer by such an inquiry.

My object—and this I wish to be distinctly understood—has not been to treat of the causes of epidemics in general. This would far exceed my present limits. It has been rather to speak of one cause, to which it is very common to attribute diseases; I mean bad, or deficient food. And to show what caution is requisite, before we venture an opinion on a matter of this sort, without having all the facts of the case clearly before us. Of the entire effects resulting from the use of bad food, and of the paramount cause of epidemics, we are as yet, I believe, ignorant.

The greater part of the following essay was originally read at sittings, of the "Dublin University Philosophical Society." It has since then undergone some slight alterations: and a few notes have been added, in confirmation of some points stated in the text.

This opportunity is taken of returning my thanks to Dr. Clinton, for kindly placing at my disposal some valuable manuscript notes, connected with the earlier epidemics of this country.

OBSERVATIONS

ON THE

CONNEXION BETWEEN FAMINE AND FEVER

IN IRELAND, AND ELSEWHERE.

EPIDEMICS have existed from the earliest periods of recorded time; nor is there any inhabited part of the globe which has not, at one time or other, been overrun by them. They have appeared under a great variety of circumstances, and, what is worthy of notice, under circumstances of the most conflicting characters. The city and the wilderness, the prison and the camp, the hill and the valley, have afforded examples of them. They have commenced on the ocean, and the continent; in marshy ground, as well as the most cultivated district; during all states of the weather—the most inclement, and the finest and the most open seasons; in summer, winter, spring, and autumn, Epidemics have raged as a pestilence, and again been so mild as scarcely to cause a death. They have been preceded, accompanied, and followed by famine, and have burst forth in the midst of plenty; they have begun and increased gradually, so that weeks, months, and years passed before they spread over a country; and they have fallen upon the same extent of country in a single night. In a similar manner they have, at times, subsided gradually, and again have very suddenly ceased. They have attacked the young; swept off the old; while in other instances their greatest severity has fallen on the middle-aged and robust. The progress of the one Epidemic has afforded an example of the last point stated. The lower animals have suffered as well as men. At times men have been peculiarly susceptible of the effects of the Epidemic, and again women, while in a third instance, children have been the chief sufferers. In some parts of the globe Epidemic diseases return yearly, with the regularity of a clock; in other places it is only after an uncertain interval of years that such takes place; while in a third, diseases that used to be frequently epidemic have now disappeared; and it has even happened that a new disease has come

into life, and been Epidemic; of which we have lately had a very marked example. Lastly, Epidemics have taken their rise, or at least have appeared to do so, in moral as well as physical causes. It would, in truth, be a difficult matter to point out any combination of circumstances, at all pertaining to the subject, in connexion with which Epidemics have not appeared.

But the variety just alluded to does not confine itself solely to the preceding and accompanying circumstances of the Epidemic. On the contrary, the diseases themselves have varied considerably. Without any particular searching I have found records of the following diseases, which have been Epidemic at some period; and I have no doubt that others could be made out:—Fever, of several types, such as agues, the plague, typhus, yellow, puerperal, and nervous fevers, *et cetera*; dysentery, of several kinds; scarlatina, measles, and hooping cough; influenza, sea scurvy, leprosy, smallpox, pneumonia, pleuritis, ophthalmia, the black death, the sweating sickness, the dancing mania, erysipelas, cholera, and others too trifling to be mentioned here.

Epidemics, from their great severity, extent, and frequent recurrence, have naturally caused much attention to be given to them. Hence, from the earliest periods, many have devoted themselves to a consideration of the subject, including some of the most gifted minds that ever adorned the profession: and thus it is, that from Hippocrates downwards, a great deal has been written on the nature of Epidemics in general. Amongst other questions their causes have probably given rise to more discussion than any other part of the subject; and considerable difference of opinion has existed on the point. They have been severally attributed to contagion, to exhalations from the earth, from animal, and from vegetable matter; to famine; to war; to changes in the weather, such as great heat, moisture, *et cetera*; to filth, and too much crowding together of the living; to depressing emotions; to marshy ground; to certain changes in the air itself; to a great and sudden increase in insect life; to earthquakes; to electricity; to excesses in eating and drinking; to want of proper clothing; and other causes, which, however, would come under some one of the heads just alluded to. Several of these have been taken up separately by authors, and put forward as the leading, and indeed, only cause of Epidemics. Hence it is that this subject, possibly beyond most others, affords but too frequent examples of that error which even the strongest minds are apt to fall into, I mean the tendency to generalize from a limited number of facts. There is scarcely a single cause stated above which has not, by some one or other, been taken up to the exclusion of all the others, and supported with a zeal which is truly amusing. The mistake was formerly much more current than at present; for, of late years, a greater number of facts, and a more philosophic spirit of inquiry have been brought to bear on the question. It is

quite true, indeed, that even now much remains to be learned on the cause of Epidemics, still we do possess some valuable information, though it be even of a negative kind. Thus, it may be asserted without any fear of contradiction, that no single cause will of itself produce Epidemic disease; or to use the words of Copeland, possibly the ablest writer of the present day, when speaking of Epidemics,—“the association of several, or of two or more of these causes, in various grades of predominance, is necessary to their occurrence, diffusion, and continuance.” I believe these words express the opinion of nine-tenths of the profession at the present moment. Still there are some who think differently, and who maintain that single causes do give rise to Epidemic disease. Thus it has been lately put strongly forward that famine and fever stand to each other in Ireland as cause and effect. To use the words of the writer I allude to “Famine, (including deficient or unwholesome food) is the paramount cause of the Epidemic Fevers of Ireland.” And again—“If there be no famine there will be no fever; and if active and timely exertion be made to afford sufficient employment and wages to our people, I believe there will be neither famine nor fever.” These propositions appear to me to call for farther consideration. To the point involved in them I invite inquiry. In following it out I shall confine myself, as far as the subject will admit, to the one question, “How far is Famine a cause of Fever?” But in so doing, I shall not confine my remarks to what has occurred in this country, but will state any facts which appear at all to bear on the matter, as in this way only can the truth be arrived at.

Most of the varied and contradictory circumstances preceding and attendant on Epidemics have been already given; I merely recur to them here for the purpose of stating that, what is true of them as a whole, applies equally to any one of the diseases which may have been Epidemic. In no case is this more strikingly marked than in fevers, of which there are authentic records, showing a wonderful variety in their origin, progress, and termination. Some points, then, in the History of Fevers, which bear directly on the question under consideration, I now proceed to call attention to, merely premising that for the present, the question is not considered in reference to this country.

It has been already stated that Epidemics have existed from the earliest periods. We have more or less particular accounts of a vast number of them. There are several noticed in the Bible, usually under the name of plagues. Homer also alludes to them as occurring at the Siege of Troy; and as we approach to the Christian era, the works of the writers then living are absolutely full of them. The plagues take a prominent place in the History of the Grecian Empire, while in that of the Roman they are, if possible, still more prominent. From the second or third century before the Christian era, and for a period of sixteen hundred years after it, scarcely a year

passed in which the most fearful Epidemics did not rage. And here it is freely admitted that in the great majority of those described, famine appeared to play a very prominent part. The writers especially mention it as preceding and attending on the several plagues. But it is also to be noticed, and to this point I would call particular attention, that these very same writers give us several examples of wide-spread Epidemics, which began when there was no famine. It is not simply that an Epidemic is described, and that there is no notice taken of whether a want of food existed or not; but it is stated in the most explicit terms, that such and such a plague began, and that the following year a famine existed. I may refer to the years 413 and 181 B.C., years remarkable for the fearful mortality which existed, and in which the writer (Livy) expressly states that these plagues were followed by famine. Again, the same author attributes another Epidemic to the crowding of both people and cattle within the walls of Rome: and from what we now know, the cause would be a very powerful one, and, together with the circumstances usually present in large cities, would undoubtedly give rise to pestilence. Thucydides is another writer who has given us particular accounts of some plagues: speaking of one known as the great plague of Athens, which occurred in the second year of the Peloponnesian war, he calls upon any one, physician or not, to assign any credible account of its rise, or the causes powerful enough to produce it; while Tacitus speaking of the year 65, during which there was a plague, states that no visible cause could be assigned. I take it as almost certain that no famine preceded these periods, from the simple fact, that in other cases where famine and disease prevailed, the same writers have told us so in the most marked terms. I may mention in passing, that the period of which I am now speaking, including some centuries before and after the Christian era, was characterized by the occurrence of the most remarkable phenomena in the outer world: earthquakes, comets, and meteors; great droughts, and heavy rains; intense heat and cold; summer in the midst of winter, and winter when there should be summer, all existed now, and with a frequency of recurrence which no other age has presented us with. To these we must add repeated famines; sudden and immense development of insect life; great mortality amongst cattle and the lower animals, including birds and fishes. I find also records of two Epidemics in which the very cats died: from which, I think, it may be concluded that at such times men would have no chance at all.

But to proceed. The plague raged in England in the year 448, and again in Italy in 542, and in both instances when there was abundance of food. In 1112 a severe plague broke out; but the year was remarkable for abundant crops. The following passage taken from *Parker's British Antiquities*, page 360, and speaking of the year 1349, is worthy of note:—"Immediately after the Feast

of Our Lord's Nativity, in winter, and amidst the greatest abundance of provisions, when there could be no suspicion that a contagious disease would arise among men, the plague commenced." The years 1379 and 1499 are also marked as years in which food was both good and cheap, and yet the plague raged in each. In 1580, Thuanus states the very same order of facts: and in 1665, when what is known as "the plague," raged in London, we find the celebrated Sydenham stating, that the fruits were good, and that there was no apparent cause for the disease.* I could mention similar facts here in reference to France and other countries; but such appears to me quite unnecessary. What, then, is the inference which naturally follows from the facts which have been already stated? Why, simply this: that Epidemic diseases, whatever be their causes, do not necessarily require famine as one of them. And here it may be well to observe, that a single contradictory fact is sufficient to determine the question: that is, should ninety-nine out of every hundred instances of epidemic disease be accompanied by famine, still, if the remaining one occur when there is plenty, it must shake the entire theory which makes famine and epidemic disease stand to each other as cause and effect. Another point I would notice is this:—it may be objected that the several plagues already noticed were not of the nature of fevers, and that, therefore, they cannot bear on the question which is the more immediate object of this Essay. To this objection it may be replied, that some of the writers already spoken of occasionally describe the diseases which came under their notice with great particularity. Thus, Thucydides, writing of one of them, details a set of symptoms from which it may with ease be inferred, that the disease he spoke of was either the yellow or the typhus fever of the present day; that is, the fever of warmer climates than our own, or the one endemic to those countries. Tacitus, and Livy too, both use expressions which make it highly probable that the epidemic diseases of which they wrote, were, some of them at least, the true plague. When to all this is added the fact, which has now been fully ascertained, viz.:—that typhus fever very constantly precedes and follows the plague—we have, I think, sufficient grounds for making deductions from what has occurred in former times, so as to bear on the immediate question before us.

But there are other facts which relate to this part of the subject, and are worthy of notice here. I mean, for example, such instances as the following:—About the beginning of the eighteenth century there broke out, at Wadham College, a malignant fever, which carried off a great number of the students, while the rest of the colleges of Oxford were unvisited. The singularity of the occurrence

* It may be observed in passing, that the disease known as the "plague," in the present day, is considered by many, a very aggravated form of the typhus fever.

caused a number of medical men to be employed to investigate it. The opinion was unanimous that the cause of the fever arose in a quantity of decayed vegetable matter which was thrown out in such a position as to affect this part of the college alone. Again, in the year 1750, we have the well-known facts which took place at what has been called the Black Assizes. Of this it is enough to state, that in consequence of too much crowding of the prisoners together for a few days, a fever broke out, which, in the course of a fortnight, proved fatal to upwards of 300 persons, including some of the judges, jury, *et cetera*.

The melancholy case of the Eclair Steamer is another marked instance of what I would adduce. A man who had slept on shore for a night or two happened to be brought on board; in a day or so afterwards he sickened and died; and finally, before the arrival of the vessel in England, more than 100 of the crew, out of 146, had been attacked. The following is copied from Sir James Fellowes' Reports:—"Towards the latter end of January, 1811, two English transports arrived in the bay of Cadiz, from Gibraltar, having between four and five hundred German recruits on board. They had been kept on board, under quarantine, for upwards of a month in Gibraltar bay; and, unfortunately, on the arrival of the transports in Cadiz, the weather became so tempestuous, that the crews of those vessels, and the soldiers, had to be kept below. During the few days that the hatches were covered over, in consequence of the heavy rains, a complete typhus fever had been formed. Here there was no alleged source of contagion at hand; there was no fever at Gibraltar or Cadiz. It was not even the Epidemic season. The people were healthy whilst they could keep the deck; but after being a few days under the hatches they were seized with a fever." Lastly, Sir John Pringle writes:—"I have observed the same sort of fever (hospital or goal fever) take its rise in crowded barracks, and in transport ships, when filled beyond a due number, and detained long by contrary winds; or when the men are kept at sea, under close hatches, in stormy weather."*

There remains still another set of facts, which take place yearly, and bear very strongly on the point I would seek to establish. I allude to the several countries of the globe, where the seasons come round with the regularity of the clock: that is, two thirds of the

* As having a connexion with the present question, it may be mentioned, that Hippocrates in his book on Epidemics, makes the following statement:—"The city of Abydos had been several times depopulated by fever. He was applied to for advice under the circumstances, and he recommended that some marshes adjoining the city should be drained. This having been done, the city subsequently became healthy. Now, this is not at all a solitary fact of the kind; many examples might be given, if necessary. As one of recent occurrence, it may be mentioned, that part of Bombay has been rendered much more healthy by drying up a marsh, and secondly, by preventing putrid fish being used as manure. It is quite obvious that famine has nothing whatever to say to such occurrences as these.

year pass without a drop of rain, while in the remaining third there is nothing else. It is quite unnecessary to give any examples of this fact, suffice it to say, that in those countries just as certainly as the rainy season sets in, diseases, and more particularly several forms of fever make their appearance, and continue so long as this state of weather exists; they then cease, and it has frequently happened that not a case of fever has been seen till the wet, or as it is often called, the sickly, season again comes round.

Enough, I think, has been advanced to establish beyond dispute, the following points. First; that some wide spread epidemic diseases, including the plague, typhus, and yellow fever, have raged at a period when there existed abundance of food. And second; that typhus fever has repeatedly originated under circumstances which entirely preclude the possibility of famine having anything whatever to say to the matter.

But are there any facts which go still farther, and which would lead to the conclusion that the excessive use of food has been followed by epidemic disease? There are, and though not many, they appear to me worthy of notice in the consideration of this question. It will be recollected that on one occasion, when in the wilderness, the children of Israel begged for the use of animal food, and when their prayer was granted, it was at once followed by a great plague. Again, I find it stated in more than one page of the valuable work by Sir John Sinclair, "On the Statistical Account of Scotland." "That in a good fishing season the people are more liable to fevers, most likely arising from the excessive use of this too nourishing food." Another instance of a similar kind is given by Huxham, a very able physician who lived about a century ago, and practised at Plymouth in England. This author is speaking of the year 1740, at a time when an epidemic fever raged. He says, "It is my opinion, indeed, that the common people heated themselves very considerably by eating too freely of fish, of which, at this time there was an amazing abundance, especially mackarel." There still remains another instance, and a remarkable one it is, as bearing on the present point. It is well known that of the huge army led by Napoleon to Moscow, but a few thousands ever returned to their native land, after having suffered the greatest hardships from cold and famine. The point, however, worthy of notice is this, that when these men had arrived in France, and got abundance of food with every other comfort, then it was that fever of a very malignant kind made its appearance among them, and carried a very considerable number off.

In stating these facts, I would have it understood, that they are not put forward as affording anything like positive proof on the point under consideration, but they do appear to me to afford presumptive evidence, that under certain circumstances an excessive use of food may help to generate epidemic fever.

A question bearing very closely indeed on the more immediate subject of this Essay, now comes to be discussed. Will famine by itself produce fever? Do they stand to each other as cause and effect? Has it been found to be so in Ireland or any other country? These questions must, I believe, be answered by a decided negative. Nor is this a matter of mere opinion, for several facts can be adduced bearing directly on the matter. In the valuable work of Lind, on the Diseases of Warm Climates, I find the following circumstances detailed. "In the year 1762, while the English troops were at Manilla, a Malaye ship arrived there from Macassar, which, by the shifting of the monsoon, had been detained at sea much longer than was expected; the men had been reduced to such extremities for want of provisions, as to be obliged to subsist for two months, almost wholly upon water and spices; the latter, viz., cinnamon, mace, and pepper, being the cargo of the ship; notwithstanding which, upon their arrival at Manilla, they all, to the number of thirty, appeared to be in perfect health."—page 376. And again; the island of Balambangan lies to the west of Borneo. In the year 1773 it was determined to make a settlement on it. In December of this year, the Royal Captain, a company's ship, was sent with provisions and necessaries for this settlement. The vessel was shipwrecked, however, some distance from the island, and the crew had to make their way to the place in their boats. Part of them were soon enabled to return to England, leaving on the island sixty-three of the officers and men. The account then goes on in these words: "here, however, until April, they suffered no inconvenience, but what scarcity of provisions and want of necessaries must naturally cause in an infant colony; all remained in perfect health; not one died; upon the change of the monsoon, in April, sickness suddenly appeared, and, during the course of this monsoon, it made such a rapid progress, that of the sixty-three left on the island, one only survived."—page 109.

Here, then, are two remarkable instances, in which a number of persons remained, in the first, for two months, and in the second for four months, suffering from want of food, and yet no fever appeared. True, indeed, in the latter instance, when the season changed, disease broke out, but we have positive facts to show that in such countries this occurs constantly, and quite independent of want of food.

There are some other facts in history, and which will be found in Webster's valuable work on Epidemics, which bear on this point. Thus in the year 446 a great part of England was overrun by the Scots, who so desolated the country as to cause a dearth of provisions. But this famine produced no pestilence, on the contrary, it is particularly noticed by the historian, that the plague did not occur, till a year of great plenty had intervened. In the year 539 a fearful famine occurred in Italy. It lasted for some time. Baronius describes very accurately the general state, and sufferings

of the people, but not a word about plague or other disease. But again, in the year 1720, a fearful plague visited Marseilles; for seven weeks there died each day upwards of 1000; I find it expressly stated, however, that as the plague began to decrease, famine increased, Allusion has been before made to Sir John Sinclair's valuable account of Scotland. During the last seven years of the seventeenth century famine existed there. Yet this author states that no sickness of any amount arose in consequence of such long continued want, nor was epidemic fever at all prevalent amongst the people. Scotland was again visited in 1782, by a great famine; the same author, speaking of one of the parishes, says: "By the divine blessing health in a eminent degree prevailed." And again; "The potatoes also, which are now become a considerable part of the people's food, were entirely destroyed. No remarkable sickness, however, followed. So great were the stints and hardships to which the people were reduced in those calamitous years, that they contracted a dull and melancholy look, which continued for several years after." Once more; "It was observed, too, very truly as to this parish, (a part of Aberdeenshire) that there was less sickness that year than usual, a fact which the curious will no doubt trace up to several causes."—vol. 7., page 368.

Such are some of the evidences which I have found as bearing on this point. With more time, I have no doubt, that others might be discovered. What has been advanced, however, is, I think, quite sufficient to show that famine may exist without being followed by fever, and that consequently it cannot have that great influence in the production of the disease which some have advanced.*

But there are other considerations which arise in connexion with this question, and which to some will probably be thought of more weight than anything that has been hitherto stated. If famine have such a powerful effect in the production of fever; if they stand to each other as cause and effect, it is but reasonable to suppose the results will be uniform; that no deviation will take place; that is, wherever famine exists it must be followed by sickness, and that sickness must be fever. Now has such been found to be the case? Do not facts point the very contrary way? Entirely so. If we cast our eyes over a few of the epidemic diseases of either ancient or more modern times, we cannot fail to be struck with the fact, that while famine was present in the great majority of them, still the diseases themselves were very considerably varied. I need only allude to such distinct diseases as fever, dysentery, smallpox, scarlatina, croup, influenza, inflammation of the lungs, and the sweating sickness. Now any one can, from first impressions, easily

* It may be mentioned here cursorily, that Epidemics have been checked at once by a change in the weather, as by a sudden or heavy fall of rain or snow, a storm, *et cetera*. Such facts go far to shake any ideas we may have taken up, as to the causes which have led to an Epidemic; famine of course amongst the rest.

imagine how famine may be a cause of fever, but when we find the same cause, if such it be, giving rise to a number of the most diversified diseases; one of two things must ensue; either that the same results do not follow though the cause remains the same, which is an absurdity, or else that famine is not the paramount cause of fever. On another occasion I hope to enter into this part of my subject more minutely.

A second consideration bearing on the question in a general way, comes now to be noticed. It has been observed by those who have recorded great epidemics, that preceding the actual outbreaks of the disease itself, all the ordinary diseases have assumed an unwonted degree of severity; and this has gone on for two, and in some instances as long as four years before the Epidemic broke out. And again, it has been observed that during the period the Epidemic raged, all other diseases of the place ceased, and in point of fact, there is no surer sign of an Epidemic being on the decline, than for any of the ordinary diseases to make their appearance after having been absent. I need scarcely observe that both these facts, and I find them laid down as general rules by the highest authorities on the subject, militate strongly against the idea that famine is a leading cause in the production of epidemic fever; neither will famine account in any way for ordinary diseases ceasing during the raging of an Epidemic.

Were I engaged here in laying down the laws which regulate epidemic diseases—which, however, it is far from my wish were it even in my power to do—I could mention other facts which should teach us extreme caution in attributing them to specific causes. Thus, in an earlier part of this Essay I spoke of Epidemics which were not only fatal to man but to all the lower animals, and yet even here on farther inquiry we are staggered by the fact, that though animal life seems at times to suffer most universally, still at the very same time insect life appears to have received an unusual stimulus. Now, under these circumstances, any one who holds the opinion that famine is a general cause of epidemic disease, and so leads to the destruction of life, will also have to account for how it happens that one form of life so far from being diminished, is actually increased to an immense extent.

For so far I have spoken of epidemic diseases merely affecting living beings. But the epidemic influence, whatever its nature be, exerts its powers on even inanimate substances, for during the existence of some of the most severe Epidemics which have visited the globe, it has been observed that such substances as silk, cotton, and wool, decay very rapidly, while it is not at all unusual for the several articles of dress to become covered with spots of the nature of mould, and which are now known to be of vegetable origin. When these spots were of a red colour, as occasionally happened, they were said to be showers of blood, and were supposed by some to

indicate the immediate anger of the Deity. Of a similar nature with the fact just stated, is the well-known one that in those sickly seasons it has been found impossible to preserve meat, it spoils and decays in spite of every care, though in other years there is no trouble about the matter. Need I add how impossible it would be to connect such phenomena with any specific cause; above all, to give any weight of a general kind to such a cause as famine, would, under such circumstances, be perfectly absurd.

But I may be told that these remarks are so general as not to apply to the particular question at issue, or else some may ask, has famine no influence in the production of disease, and more particularly fever? Or what place is it fairly entitled to hold? I have purposely reserved these considerations till I come to consider the question in relation to this country in particular. This I now proceed to do.

In considering the connexion between famine and fever in Ireland, I believe a better course cannot be adopted than what has been already pursued when speaking of the question in a general way. And here I would state, once for all, that, from any researches I have been able to make, this country presents no peculiarities which would entitle it, in a matter of this sort, to a separate consideration. In the present instance I have, for obvious reasons, been led into this objectionable method of discussing the question; but I must again repeat, that the great and leading phenomena which attend, or at least appear to attend, on the production of epidemic diseases in Ireland, do not differ from those observed in other countries of Europe; and *vice versa*. This point, which appears to me one of considerable importance, will, I trust, be made evident, as I proceed. Thus, in the early annals of Ireland, as in those of the countries already described, several notices may be found of plagues which proved more or less destructive to the human race. In the year 549, a great pestilence is described as occurring, which lasted three years. It returned in 554, and lasted then two years; and again, slightly, in 576, when it is stated that the fruits were abundant. These three plagues corresponded with the period of what is known as "the great one," and which has been described by Justinian as affecting the whole of Europe, and as lasting, according to him, for fifty years. It is obvious, however, that it could not have been at its height all this time, but has merely broken out so often as to entitle the entire period to be spoken of as one great pestilence; for otherwise the human race must have become extinct. Now, at least two of these plagues were accompanied by famine, though the third was not. It, however, was but slight. But, as bearing on our question, what was the nature of these plagues? Were they

fever, or "the plague" itself? No such thing. On the contrary, there is every reason to believe, from the symptoms stated, (though not very specific) that these plagues were smallpox. There is no doubt it was this disease overspread Europe at the same period, and was said to have continued fifty years. It was known in this country by the name of the "yellow plague," and was calculated to have carried off two-thirds of the inhabitants. It is rather curious, in looking over the annals of these years, that though failure of the crops was common enough, and the plagues numerous, still the one is hardly ever mentioned as the cause of the other. On the contrary, they are often to be found associated together as cause and effect, when the narrators are speaking of the murrain in cattle. It would appear, also, that cattle plagues were very common at this era.

Of about twenty recorded, it is worthy of remark, that ten were combined with various disorders of the human species. Leprosy was a well-known disease at this period; and was attributed by some to the immoderate use of swine's flesh. Several hospitals were built over the country for this disease; the remains of some of which remain to the present day. But to proceed. In the year 805, a great pestilence prevailed, at a time when it is particularly stated that there was abundance of food.

The year 916 was remarkable for the sudden appearance of a wide-spread plague, which went under the graphic name of the "furious death." This plague raged in England at the same time; and from authentic records we know it to have been of the nature of brain fever. So much were the four masters at a loss to assign a cause for this plague, that they attributed it to magic, as it is particularly noticed that no obvious cause existed. This disease prevailed more or less for ten years.

The year 1011 was remarkable for the summer being excessively hot, and the harvest being most abundant. An epidemic dysentery is recorded as having occurred this year at Armagh.

In 1111 a great plague broke out both here and in England. It was accompanied by famine; and great numbers of cattle and fowls are described as having died at the time. The following year proved to be a most abundant one; and yet it is particularly mentioned that the same plague continued to rage.

In the year 1172 the English army, after its return home, was attacked by a contagious dysentery, which was attributed, on that occasion, to the excessive use of fresh fish and flesh while in Ireland.

The year 1224 has been celebrated for a remarkable shower which fell, and was at once followed by a terrible disease amongst cattle, not only in this country, but all over Europe. This so called shower was clearly of a similar nature to what has been already alluded to, as being observed in other countries.

A great plague is described as occurring in the year 1478. It is stated that it was imported by a ship which entered Ballyshannon

harbour; from which place it spread through Fermanagh, Tyrconnel, the province of Ulster, and ultimately over all Ireland.

In the year 1455 a great cattle plague occurred. It is mentioned that this year was remarkable for its great abundance.

The first, and, I believe, the only time the sweating sickness appeared in Ireland, was in the year 1491. It raged chiefly in Meath, and the adjoining counties. This same year there was a failure of all the crops over the country.*

Such is a very brief sketch of some of the leading Epidemics which are to be found recorded as occurring in this country, from the earliest periods, till the beginning of the sixteenth century. There are numerous others recorded; but as they did not present any peculiarities, I have omitted them. What have been alluded to, it must be admitted, we have very imperfect accounts of; nor would I have it supposed that they could be advanced as bearing, with any degree of certainty, on the question under consideration. They do, however, afford ample proofs of one or two points which appear to me worthy of notice. Thus, as regards epidemic diseases, in the earlier periods of Ireland's history, there are no peculiarities which have not equally been presented by the other countries of Europe. There are a large number of cattle plagues recorded, and a considerable number of Epidemics affecting the human race. With these there were very generally years of scarcity; whilst in some instances we have equally authentic records that they appeared in the midst of plenty. Any one who was anxious to attach importance to famine as a cause of diseases, has here a good opportunity of doing so; and, if it so please him, he may have his pick and choice as to the special disease which is the consequence of want of food. Smallpox, dysentery, leprosy, the sweating sickness, the plague, malignant fevers, including agues, and the murrain amongst cattle, seem all to have been extensively Epidemic during these early ages, and all to have followed in the track of famine; though some of them, undoubtedly, occurred during years of plenty. The records of these times, as was before stated, are, no doubt, imperfect; but they afford ample evidence of what has been advanced.

As we approach nearer to our own times, however, evidence of a more satisfactory nature can be adduced, as bearing on the particular diseases of the country. Thus, Campion, writing in 1571 of Ireland, says:—"It is low and waterish, environed with bogs and marshes. The highest hills have standing pools on their tops. Inhabitants, especially new ones, are subject to distillations, rheums, and fluxes; for remedy whereof they use an ordinary drink of aqua

* In the year 1504 a great pestilence visited the south of Ireland, and spread over the entire of Munster. It carried off a great number of people. The historian then goes on to state that a great dearth occurred the following year, which also destroyed numbers of the people.—*Smith's History of Cork*, p. 34.

vitaë, so qualified in the making, that it drieth more and inflameth less than other hote confections." And again, Camden, who wrote his *Brittannia* in 1584, states:—"The excessive moisture of the air and soil of Ireland occasions many to be affected with fluxes and catarrhs, particularly strangers. To stop these they have excellent usquebah, much less heating, and more drying than ours."

In 1591, Walter, Earl of Essex, died of dysentery in Dublin. Borlase, speaking of the fact, says:—"The dysentery so fatal to this worthy person, is commonly termed the country disease; and well it might, for it reigns no where so epidemically as it does in Ireland; but whether it proceeds from a peculiar disposition of the air, error in diet, the laxity and waterishness of the meat, or some occult cause, no venomous creature living there, I shall not determine; though each of these circumstances may well conduce to its strength and vigour. Certain it is, that regular diet preserveth most from the violence, and many from the infection of the disease; yet, as that which is thought very sovereign, I must say, that the stronger cordial liquors, as brandy, usquebagh treacle, and mithridate water, are very proper."

It will be observed from these extracts that during the sixteenth century the most common and serious disease of this country was dysentery; and further, that the latter author specially notices "regular diet" as being the best safeguard against the disease. The "Irish ague," as it was called, and which, I believe, is first noticed by Boate, in his work entitled "*Ireland's Natural History*," published in 1652, is undoubtedly the same disease as the fever of the present day. Besides this disease, the same author particularly notices dysentery, rickets, leprosy, and some minor affections, as being particularly prevalent in this country.

I have thus glanced very briefly at the several diseases which were epidemic from time to time in Ireland, from the earliest periods till the beginning of the eighteenth century; and any circumstances attendant on them which appeared worthy of note. This course has been adopted, because I believe, a much clearer view will, in this way, be got of the subject, than if our observations were confined to particular periods, and consequently to special diseases.

We come now to a period where all obscurity connected with the history of the Epidemic diseases of this country in a great measure ceases; and as these have been put prominently forward, as affording proof of the position that famine and fever stand to each other as cause and effect in Ireland, it will be necessary to consider them somewhat in detail. Since the beginning of the eighteenth century there have been at least six severe epidemics of fever in this country, viz.:—1731, 1740–41, 1800, 1816, 1826, 1837. To the first of these periods, that of 1731, I would draw particular attention, and am willing to rest the entire argument on it alone. In adducing it as a period, on the opposite side of the question, which

favours the opinion that famine stands to fever as cause and effect, I have satisfied myself that sufficient investigation has not been made into the several years, and consequently, that mistakes have arisen which give a very erroneous view of the case. The following paragraphs are taken from the pamphlet I had before occasion to allude to:—

“1728.—Spring, mild; summer, cold and wet; ice in the Liffey 23rd June; autumn and winter variable; three bad harvests in succession; provisions at an extravagant price.

“1729.—Spring, cold and dry; summer, dry; autumn, wet; winter, open. Scarcity of crop; distress continued; housekeepers begging bread in the streets of Dublin.

“1730.—Spring, variable; summer, wet; autumn, variable; winter, open, mild, dry. Distress still continuing.

“1731.—Spring, dry; summer, hot; autumn, variable; winter, wet and warm. Distress still prevailing. Fever commenced in 1728, and lasted to 1732.”

Now let us consider all the circumstances of this particular period. And here—I would observe, that my information is taken from the same authors as are quoted in the pamphlet already alluded to, viz.:—Rogers, Ratty, and Boulter. I find that, commencing with the year 1725, there were three bad harvests in succession; that is, '25, '26, and '27. In 1728 there was great scarcity in the north of Ireland, at a time when the greatest abundance existed in Munster. One of Boulter's letters, p. 229, states of this year:—“the scarcity and dearness of provisions still increases in the north.” Large subscriptions were entered into in Dublin for the purpose of purchasing food in the south of Ireland, to be conveyed to the north. In October 1729, the same historian, p. 264, thus writes:—“We are, no doubt, in a miserable condition, by having had three or four bad harvests together; and if God had not blessed us with a plentiful crop this harvest, we had been ruined for some years.”

I can find no notice of any want existing in 1730 or 31.

Here then we have three successive years of bad harvests in the first instance, and still no epidemic fever shows itself. I think it will be admitted by every one, that if any real connexion existed between famine and fever, it should have shown itself, if not at the end of the first year of scarcity, at least during the second. But here a third year of want is superadded to two immediately preceding, and still there is no fever. I will be told, however, that fever appeared in 1728, and continued till 1732. Granting that it did so, still, it will be observed that it began in a year when there was only a local famine in the north of Ireland, abundance existing in the south. But supposing what has been just stated to go for nothing, how are we to account for the fever continuing in the midst of abundance. For, let me again repeat, that in the year

1729 there was "a plentiful crop." Now, here, according to the theory propounded on this question, the fever should have ceased. We find, however, that it did not do so.

There remains another point of view, and to myself it appears an important one, from which the circumstances now under consideration may be looked at. It is this:—Any one would reasonably expect, that if famine were the cause of fever, there should exist some proportion between the cause and the effect; that is, when famine was very extensive and continued, the fever following should be so likewise; and *vice versa*. Now, I cannot find, from any inquiries that I have been able to make, that this was the case in the present instance. That fever existed in Dublin, and still more in Cork, is certain; but that it presented anything of a wide-spread epidemic, at least till the year 1731, is very doubtful; and yet, out of four years succeeding each other, the three first had bad harvests, and in the fourth there was a partial famine. I have given in a note* some extracts from Rutty's valuable work, which show what were the leading diseases of the years we are speaking of. Now, from the extracts of the work of Rutty, it is, I think, quite evident that fever did not prevail extensively in Dublin, in the year 1728, or following years. That it was not, in point of fact, Epidemic; and that in the year 1729 it only existed for three months. But this, it

* "In April, (1727) the pleurisy was epidemical and mortal in the country, less in the city. The smallpox this year were very epidemical and mortal."—p. 10. (In November and December of same year, the horses, both in England and Ireland, were suddenly seized with a cough and weakness which proved fatal to many of them.)

"In May (1728) intermittent fevers were frequent." "Intermittent fevers mentioned in May continued in June."—p. 12.

"In December of same year a petecchial fever was observed, but not mortal."—p. 14.

"Intermittent fevers were epidemic in April (1729); and some of the petecchial kind: nor was this altogether peculiar to us; for at the same time we were informed that intermittent and other fevers were frequent in the neighbourhood of Gloucester and London."—p. 15. "From August to October (1729) a petecchial fever appeared."—p. 16.

"In November raged an universal Epidemic catarrh," which prevailed over great part of Europe this year, (1729)—p. 17.

"Intermittent fevers were frequent in May, (1730) as they were also in summer, both here and in London, and elsewhere in England."—p. 20.

"In August and September, (1731) diarrhœas were frequent."—p. 25.

"In the three spring months, (1732) coughs, and a few peripneumonies, and aguish disorders occurred; which last were also Epidemic in the country at the same time."—p. 27.

"The close of the year (1732) exhibited a remarkable Epidemic of foreign original, and like that above described, in 1729, but more mortal, being, perhaps, the most universal disease on record."—p. 30.

So much for Rutty, whose work is considered, and justly too, a standard one on the diseases of Dublin, during the period he wrote. The following passage is copied from Rogers' valuable work on "the Epidemic Fever of the year 1731." This physician lived in Cork, and is speaking of that place:—"From the year 1721 to the year 1728 this fever was little heard of; but from that time hath visibly, every year, gained ground; and seems to have been this last winter at its full height. The winters of 1723, 1729, and 1730, were notoriously infamous for dysenteries of the worst kind, as that of 1731 hath been for a most fatal smallpox."—p. 5.

will be recollected, was the year of plenty. On the contrary, we have ample evidence from the same author, that other diseases were Epidemic during some of these years. Thus, we find notice of pleurisy and smallpox being so in the year 1727; of two most extensive Epidemics of influenza in 1729 and 1731; of the great prevalence of agues; and lastly, of a serious Epidemic amongst horses. But again, if we look to what took place at Cork, as recorded by Rogers, we find that fever broke out there in 1728; that is, at a period when Munster was able to send food to the north; that this fever increased in 1729-30, and attained its maximum in 1731; the former of these years being remarkable for an abundant crop. It will be observed, too, that during these years bad dysentery and smallpox also prevailed—a point to which I will have to allude again. Indeed, that scarcity of food had nothing to say to the fever which existed in Cork at this period, appears clear from the following fact:—Rogers, when discussing the several causes of the fever, for he did not confine himself to any one, thus expresses himself:—“ ’Tis past all doubt, that in no part of the earth a greater quantity of flesh meat is consumed than in this place, by all sorts and conditions of people, during the slaughtering season. Our slaughtering begins in August, and continues till January; and between these very times, it may be observed, that the violence of our endmical Epidemics is concluded.”

It strikes me that what has been advanced in relation to the period intervening between 1725 and 1732 is nearly conclusive evidence on the point under discussion; and it is but right to state, that particular pains have been taken to obtain the most accurate information on the subject.

The years 1734, 1735, 1736, are the next to be noticed; but it will only be necessary to glance at them, as several much more important periods yet remain to be inquired into. As was done before, I copy verbatim the account of them to be found in the pamphlet.

“1734.—Summer, wet; autumn, variable; winter, mild; harvest, bad—much straw and little grain.

“1735.—Summer, again cold and wet; autumn, wet; winter, open; fruits and grain very backward.

“1736.—One of the hottest summers remembered; autumn, fair; winter, open. Petecchial fever appeared in winter of 1734; continued through 1735, became very fatal and frequent in summer of 1736, and disappeared in autumn of same year, which brought a most abundant harvest.”

Here it will be observed, that the crops having failed in 1734, caused a fever in the winter of the same year; thus affording a marked contrast to the last period attention was directed to, when three bad harvests, in succession, were not sufficient to produce fever. As to the expression used above, that the fever continued through

1735, it is necessary to explain it, as it might possibly lead a common reader to suppose that the fever continued equally through the entire year, which is not the fact. Rutty, speaking of part of this year, states, p. 47:—"Agues which had been frequent in April and May, were protracted to June and July;" and again in the same page:—"In June and July appeared some sporadic petecchial fevers; but we shall see that these grow more frequent at the latter end of winter." It is quite evident from these passages that during four months of this year fever could scarcely be said to have existed at all. And it need not be observed how difficult it is to reconcile this fact with the opinion that famine is the paramount cause of fever. If it were so, we should naturally expect, that the cause continuing, the effect should do so likewise. But we do not find such to be the fact. To this important point attention will be directed again. The mortality of the fever in the summer of 1736 was principally amongst "those of higher condition," as Rutty expresses it; whilst the bills of mortality themselves were increased at this period by smallpox as well as fever."—p. 55, 56. This, though apparently a trifling point, is one of importance, as I hope to show farther on. It will be observed that the fever of this year was at its height in the summer time, from which period it began to decline; that is, if I understand the matter, it had begun to decline before there was an increase of food to account for it; Rutty thus expresses himself in the autumn of this year, p. 59:—"From the latter end of August, and throughout September, appeared a few intermittent fevers; but the fever of last summer was much rarer." I must leave to others to explain a point of this sort. As to "the most abundant harvest" of this year, there must be some other authority for the fact than Rutty, as I cannot find that he alludes to it at all.

We now come to the epidemic fever of 1740–41, which, though one of unusual extent and severity, does not call for any lengthened remarks. It is thus described in the pamphlet from which I have already quoted.

"1739.—Spring, cold; summer, wet; thermometer not higher than in May; autumn, variable; winter, cold; most intense frost, continuing with scarcely any intermission, from the 27th of December to the 14th of February, of the following year. Potatoes, the food of the poor, rotted; tillage interrupted in spring.

"1740.—Spring, dry and cold; summer, dry; autumn, unusually frosty; winter, frosty. "Great dearth of provisions this autumn, 1740, which proceeded almost to a famine in winter; the potatoes having failed, while other provisions bore double or treble their usual price."—Fever appeared in the summer of 1740, increased in autumn, and rose to a terrific degree of violence in spring and summer of 1741. 80,000 persons died of fever and dysentery in this Epidemic. The fever which had begun last autumn returned

in spring, and raged through the summer of 1741. It was computed that one-fifth part of the inhabitants died, though probably with exaggeration.

“1741.—Spring, dry; summer, dry; autumn, variable; winter, frosty. Plenty of good corn in autumn of 1741; fruits of the earth duly matured; winter concluded healthy; and the bills of mortality sunk conspicuously.”

Now it may be well to look to the years preceding the great famine, which it will be remembered began in the autumn of 1740. I find that the years 1738–39 were years of abundance. The following account of them is taken from *Smith's Kerry*, p. 77:—“In these years there was an uncommon plenty of all sorts of provisions, for man and beast, which, if well managed, would have been sufficient to supply the wants of the four succeeding years.” To agree with these years of plenty, we should, according to the author of the pamphlet, find a corresponding degree of health among the people. But when I come to inquire into the point in Ruddy, who is quoted so frequently, the following passage, speaking of the year 1739, presents itself, p. 75:—“The latter part of July and the months of August, September, and October, were infested with a fever, which was very frequent during this period, not unlike that of the preceding year.” Here then is fever existing in the midst of plenty, at a time when the crops of the year, supposing they had failed, could not by possibility have had anything to say to it. But to proceed. It is stated of the year 1739, that “potatoes, the food of the poor, rotted.” And here some mistake must have occurred, I think; at least, no author, that I have consulted, confirms this statement; nor is any authority referred to in the pamphlet itself. On the contrary, it is in direct contradiction with the passage given above from Smith. The next fact to notice at this period was the intense cold, which began in December, 1739, and continued for a space of seven weeks. It existed in England as well as this country, and to a degree which had never been equalled. It naturally interfered with the proper cultivation of the soil; and it, most probably, with other circumstances, caused a very severe dearth the following autumn, which increased during the winter almost to a famine. Now, according to the pamphlet, the “fever appeared in summer of 1740;” that is, before the dearth of the autumn could have in any way affected it. We are, then told that it “increased in autumn, and rose to a terrific degree of violence in spring and summer of 1741. Here, any one looking closely into the subject will naturally inquire as to the state of the fever during the winter; which period it will be observed has been omitted in the account of the year. Did the fever go on increasing with the advance in the season? Did it keep company, so to speak, with the increasing want of food? as we would expect, if indeed there be such a connexion between famine and fever, as some main-

tain there is. No such thing. On the contrary, we have direct testimony, even in the pamphlet itself, that the fever which had begun in the summer of 1740, and increased in the autumn, subsided during the winter, and again began to rage in the spring of the following year. Ruttý's words are:—"In autumn also appeared an Epidemic continual fever, which did not wholly cease in winter."—p. 83. And again:—"The fever, which had begun last autumn, returned in spring, and raged through the summer."—p. 86. The words of the pamphlet itself have been already quoted to the same effect. I cannot help thinking that this fact, admitted by all parties, viz.:—that the fever declined at a period when famine was on the increase, is totally at variance with the idea which makes the latter a paramount cause of the former; and I am quite unable to reconcile such a fact with the statements which are to be found at page 14 of the pamphlet:—"No matter how climate varied, or seasons revolved, how summer or winter rolled on, so surely as want appeared, so certainly did pestilence follow." And again, farther on, while alluding to the epidemic we are now considering, "So long, although there was every variety of weather, did the Epidemic continue, defying alike the heat of summer, and the supposed fever-destroying influence of winter."* It is unnecessary to point out the contradiction between these statements, and what is to be found at page 11 of the same pamphlet.

There remains one or two points more to notice in connexion with this Epidemic. It has been already stated that fever prevailed in the summer and autumn of 1739, before famine could have exerted any influence. I find, too, from Huxham, that in this same year fever prevailed at Plymouth in the south of England, and that it had even reached its acme before it broke out in Ireland: and that all the common diseases of that part of the kingdom, during the same period, assumed an extraordinary degree of malignity. The mortality during the entire year was in consequence very great. "Nor," says Huxham, "did these diseases rage here (Plymouth) only, but every where, and were much more fatal than usual."—But farther, Ruttý states "that in Dublin, in May, 1740, besides the more common diseases, smallpox began to rage, and increased with the summer:" and that dysentery made its appearance in July, as it did also at the same time at Plymouth: p. 81.—Lastly, in looking at the mortality which occurred in this Epidemic, and which was calculated at 80,000, it will be observed that the deaths are not all ascribed to fever; but that dysentery is also mentioned in the pamphlet. To this ought to be added also famine, which is specially alluded to by O'Connell and Ruttý.

* "But, though Epidemic fever may commence in winter, and continue through all the rigours of that season, still the fact seems well established, that the frequency, not only of fever, but also of the plague, increases in the summer and autumnal months."—*Barker's Report of Cork-st. Hospital*, 1818, p. 15.

These latter points connected with this Epidemic may appear very trifling; but in reality they are not so. The considerable increase in fever before famine shows itself; the unusual severity in the more common diseases, observed not only in this country but most extensively in England; the comparatively sudden spread of such diseases as smallpox, and dysentery: all point to a general cause, to which some authors have given the name of "an Epidemic Constitution." I do not profess to be able to define in what this consists, but to myself it appears to be quite evident that it is a something, which is ten-fold more diffused than famine; that in point of fact famine is an effect—and but a very small effect—of some more general cause; which cause also gives rise to epidemic diseases. There will be occasion to allude to this point again. Let it not be forgotten either that the Historians of the Epidemic under consideration, mention three distinct causes for the numerous deaths which took place; viz.: dysentery, fever, and famine; by the latter of which is meant pure want. Now, according to the theory advanced, none should die of starvation; which, I think it will be admitted, is the usual result of want of food; but only of fever. But this was not found to be the case.*

Of the years which intervened between this last Epidemic of 1740–41 and 1800 little need be said. In the year 1771 an epidemic fever occurred. It is recorded by Sims; began in the summer of 1771, raged with violence as the autumn advanced, continued through a severe winter, and in its course completed the circle of a year. It claimed, said Sims, the prerogative of the plague: almost all other diseases vanishing before its sovereign presence. Barker, † to whose most valuable writings I will now have frequent occasion to recur, thus speaks; p. 9:—"Persons advanced in years still speak of the havoc which disease produced in the year after the hard frost, that is, 1740, but no recollection is preserved of the Epidemic described by Dr. Sims, although it occurred thirty years later; it wanted the concurrence of public calamity, of famine, or intestine war, to give it the stamp which belongs to the great Epidemics of 1740, 1800, and 1817."—Here it will be observed is an epidemic fever occurring without famine to account for it. ‡

We now arrive at the year 1800, during which, and the following one, a very wide-spread fever existed in this country. When we come to inquire closely into all the circumstances however connected with this Epidemic, it will be seen that it was very similar to what

* Wakefield thus speaks, p. 8. vol. 2. "In the year 1740–41, the horrors of scarcity again returned, and thousands of the poor are said to have perished of absolute want, and the use of bad provisions."

† This work was published in 1821.

‡ Since writing the above I have examined the original Work of Sims; and there is no doubt whatever, that there was no famine to account for the Epidemic of 1771.—The causes of the fever are discussed at p. 183: but famine is not mentioned at all.

has been already detailed of others. It is thus described in the pamphlet.

“1798.—Summer and autumn of 1797, wet, crops scanty, fuel scarce. 1798, gentry flying out of the country; poor out of employment; tillage neglected; consequent starvation. Fever prevalent in spring, 1798, spread in the end of summer to a frightful extent.

“1799.—Summer, wet and cold; general deficiency in the crops. Fever now assumed a most malignant type.”

“1800.—Summer, unusually hot and dry; but followed, like the previous wet winter, by deficient crops; the crops moreover of very bad quality; the people in a state of starvation. Malignant fever continued from 1798.”

“1801.—Most abundant harvest, fever began to decline, and disappeared in the summer of 1802.”

The account of these four years is avowedly taken from the work of Barker above spoken of. At least none other is quoted. But there are circumstances stated in this same work, and speaking of these same years, which might—and to my mind ought—to have been noticed. Thus, at p. 9, I find the following passage:—“A careful examination of some documents in our possession, which elucidate the state of the public health at the end of the last, and beginning of this century, shows that an ‘Epidemic Constitution’ commenced about 1797, which did not terminate until 1803: 1800, 1801, was the period of its greatest height. The documents we allude to are, the monthly returns and reports made to government by the Army, Medical Board of Ireland, the proceedings of the Governors of the House of Industry, and the records of the Fever Hospital at Waterford.” The author then goes on to observe that these records are a better criterion of the health of the community at large than they would be now. The troops were then more generally in temporary barracks; they consequently mixed more with the lower orders, and were more liable to contract contagious disease than at present. He then observes, p. 10: that the health of the army was every where good at the latter end of 1796; that, owing to circumstances, the troops had to take long and fatiguing marches in the December of 1796, and January 1797, when the weather was very inclement; and that acute diseases were in consequence considerably increased; “continued fever became rather more prevalent among the poor in the towns, and in the course of the summer, 1797, it appeared among the troops in several cantonments.”—“The year 1797 was, upon the whole, a healthy one in Ireland; but early in the next eventful year a considerable increase of fever and dysentery was remarked in the southern and western districts of the kingdom, which was attributed principally to the uncommon quantity of rain that fell during the greater part of the summer and autumn of 1797, and which prevented the peasantry from laying in the usual supply

of fuel.”—p. 11. These extracts might be added to; but to myself they appear quite sufficient evidence of two points which bear strongly on the question under discussion. 1st. They show that long before anything like famine took place, fever had been on the increase. 2nd. That this fever made its first appearance amongst a class of persons, where we should least expect to meet with it; that is, amongst the troops; not one regiment, be it observed, in a particular locality, but in several, scattered over the face of the country, and at long distances from each other. Causes, no doubt, there were to account for this sickness; but famine was not among the number. It will I think be admitted likewise that the state of the troops must, under even the worst circumstances, have been by many degrees superior to that of the lower orders. I cannot help thinking that these considerations are strikingly opposed to the opinion which makes famine the paramount cause of fever in this country.

It seems unnecessary to pursue this particular part of the subject farther; except to state, that during the next year or two, the health of the troops varied in a remarkable way. Thus, in July, 1798, they had so far recovered, that the Director General of Military Hospitals, reported them to be in remarkably good health, in every district of the kingdom. In the later months of the same, year, however, fever again broke out amongst them. This, by unusual exertions, was subdued by the following July; that is, in 1799; but it was only that it might burst forth again with redoubled strength in the winter and spring of 1800 and 1801: at this period it was that the Epidemic had reached its greatest height over the entire country. One point more in connexion with the question under discussion remains to be noticed. The years of actual want in this Epidemic were 1799 and 1800. On the contrary the year 1801 was remarkable for the abundance of provisions. Now, according to the theory advanced, the fever ought to have declined, or at least begun to decline, in this year. But from any actual numbers that I have been able to make out, this was not the case.

The only fever hospital which existed in Dublin at this period gives the following numbers, as the mortality of the years 1800 and 1801; that is, of the years of want succeeded by one of great abundance; for the first, 1315 deaths; and for the second, 1353. Now, in some of the Epidemics already spoken of, and in some which yet remain to be noticed, the decline of fever took place in the autumn of the abundant year. But though food was most unusually plentiful at this season, in the year 1801, it is evident, from the number of deaths given, that the fever did not decrease till the following year; in which I find the deaths put down at 384. The discrepancy, in this point, between the Epidemic fever of 1800, 1801, and others of a similar kind, will be noticed again.

The next great epidemic fever which visited this country occurred in the years 1816, '17, and '18. It is right to observe that we possess the fullest records of this most wide-spread and formidable Epidemic, not only as regards this city, but of the entire kingdom. The work already alluded to, published by the present able Professor of Chemistry in this University, and by the late Dr. Cheyne, is, in this point of view, a most valuable record. There is also another very able sketch of the Epidemic by Dr. Harty; besides one or two from the Physicians of the Cork-street Hospital of this City; to all of which there will be occasion frequently to allude. The following are the circumstances given in the pamphlet in connexion with this Epidemic.

“1817.—Crops of the preceding year very deficient, did not arrive at maturity; corn was uncut in November, much of it lost. Corn saved was green in the husk, or malted; potatoes scanty, wet, unripe. No straw even for the beds of the poor; turf also deficient. This combined deficiency of food, fuel, and bedding, felt most severely in winter and spring of 1816–17, when fever appeared, which became very prevalent in summer of 1817. Spring and summer of 1817, wet, cold, and unproductive, as the preceding year.

1818.—Spring, moist; summer, unusually hot; crops good; provisions in abundance. The Epidemic, which had arisen in spring of 1817,* continued to increase at a rapid rate through summer, winter, spring, and summer again, until the autumn of 1818, which brought with it a most abundant supply of food, fuel, and straw for bedding. Fever at the very same time began to decline, and soon after disappeared. One million and a-half of the population suffered from fever in this Epidemic.”

Now, I question not the facts, as here put forward, concerning this formidable Epidemic of 1817–18; but I must add, there are several others, which are particularly noticed by the various authors who have written on the Epidemic, and without a knowledge of which we might most readily be led astray. Thus, in discussing the question of the connexion between famine and fever, it will be naturally asked, when did the sickness commence? Did it follow on the heels of the scarcity which took place in the autumn of 1816? It did not. On the contrary there is the most authentic evidence to show, that fever had been on the increase in several places in Ireland, previous to the period of want just alluded to. Let me direct particular attention to this point; believing it, as I do, to be one of the

* Though the Epidemic spread generally in 1817, still in some two or three places, it did not appear till the summer and autumn of 1818. Our author attributes this to the superior condition of the people of these parts; but if this argument were a good one, these places should not have had any fever: because they suffered not from famine: and according to the theory, “if there be no famine there will be no fever.”

greatest importance in the question.* I find, then, that so far back as the year 1810 fever began to increase considerably, and went on almost uniformly increasing till the year 1815; that is the year preceding the scarcity. I find farther that the admissions in this same year, 1815, were, in round numbers, one thousand more than in the following year; that is when scarcity began to be felt. But farther still, that the admissions of this same year, 1815, were actually 60 more than the admissions in the year 1817, when want existed in all its horrors. It may be asked here, what sort of years were those of 1814–15, when fever had attained such a height? Surely there was scarcity in those years? Quite the contrary. The following passage from a masterly report by the late Dr. O'Brien, for the year 1818, and written at that time, is to the point; p. 22. "The year 1813, with respect to the quantity and quality of provisions, was an average year; and 1814 and 1815 were more plentiful than usual, while in 1816 the harvest was nearly destroyed." Here then we have a year during which a great deal of fever existed, and yet during this same year food was more plentiful than usual.

If it were only in Dublin that the point to which attention has been directed, had existed, it might be set down to some casualty. But the same fact occurred also at Waterford and Cork; and I find the respective physicians of both cities expressly noticing the increase of fever, which took place for some years previous to those of 1816–17–18. We have, then, undoubted evidence on this point. How it is to be explained by those who make famine and fever stand to each other as cause and effect in Ireland, is not for me to determine. There remains another point, in connexion with these years, and with our subject, which calls for notice. It has been already stated, and there is no doubt whatever of the fact, that there was nearly an entire failure of the crops in the year 1816. It is possible, too, that any one reading the account of the following year in the pamphlet, might infer that the same thing took place then also; though it is not stated in so many words. The sentence is, "Spring and autumn of 1817, wet, cold, and unproductive, as the

* The following are the numbers admitted, during several consecutive years, into the Cork-street Hospital of this City:—an Institution which has, since its foundation, been considered an excellent index of the state of fever amongst the poor.

1809	Patients Admitted,	1052
1810	"	1774
1811	"	1471
1812	"	2265
1813	"	2627
1814	"	2391
1815	"	3780
1816	"	2763
1817	"	3720
1818	"	7608

preceding year." Now what are the real facts? Why, that the crops of 1817 could not be pronounced very deficient, as those of 1816 undoubtedly were. The following passage I take from Dr. Grattan's report for the year 1819; p. 22:—"The harvest of 1817, though not as favourable as could have been wished, was however reasonably good, and this, with the importation of foreign flour, and other supplies, not only improved the quality of the food, but lowered its price considerably, previous to the period at which fever first evidently began to increase." Now this fact, of the existence of a tolerable crop in the year 1817 does not square with the progress of the Epidemic fever, for we find, that when a real scarcity occurred, as in the year 1816, the amount of fever which followed in 1817 was much less, than what followed when there was only a partial failure, such as took place in the autumn of 1817.

The number of fever patients admitted into the Cork-street Hospital for the years 1815-16-17-18, I must again repeat, as throwing most important light on what has occupied our attention.

1815.—(A year of great abundance),	3780
1816.—(A year of the greatest want),	2763
1817.—(A tolerable crop),	3720
1818.—(A year of great abundance),	7608
1819.—(A year after one of plenty),	3921

These numbers, I think, speak for themselves, and require no farther comment here. It need only farther be observed that the price of provisions had fallen considerably before there was any manifest increase in the Epidemic; a fact noticed specially by other authorities besides the one quoted. "*It also deserves notice;*" writes Dr. Baker of this Epidemic; "*that during the time when provisions were most scarce, and the sufferings of the poor from this cause were at the greatest height, fever did not prevail in Dublin more than in some former years, nor did it make its appearance here until a more abundant harvest and the supplies obtained from abroad had produced a great reduction in the price of the necessaries of life, in that of bread amounting to one third, and potatoes still more, so that when the epidemic fever commenced in Dublin, the price of those articles did not much exceed the usual rate.*"—Rep. of Cork-street Hospital for 1817, page 8. How epidemic fever managed to get into our City while food was not much above the average price, and why it raged the following year, which was one of great abundance, is not for me to determine.*

One other consideration remains to be noticed here. It has been already stated that for some years previous to the breaking out of this Epidemic, it was on record, that fever had been on the increase

* Some might attribute it to contagion, or other causes; but this it is evident would be at once giving up the position that famine was its paramour cause.

in three or four of the largest towns of Ireland. Now this increase, though very marked, could not be said to constitute the epidemic fever.

But when did this latter begin? The scarcity, let it be kept in mind, was in the autumn of 1816. Now, I find, by the accurate record* obtained and published by my friend Dr. Harty, that fever had become epidemic in several parts of Ireland in the months of August and September of this same year, and in one town, Enniskillen, it had begun so early as July. That is, in other words, the Epidemic had appeared before the want of food could by possibility have exerted any influence. This, it will be recollected, is not the first instance adduced of a similar occurrence having been observed.

There are some considerations of a general nature,† which arise out of the circumstances observed during the progress of this Epidemic, which will be brought under notice again.

The next Epidemic fever which occurred was during the years 1826–27. The following is our author's account of it.

“1826.—Potato crop of the preceding year, 1825, very deficient. The weavers in Dublin were by a sudden reverse of trade thrown out of employment to the number of 20,000. Fever appeared rising rapidly in spring of 1826, reached a terrific height in the autumn and winter following, declined in summer of 1827, and disappeared in autumn. Summer of 1827 produced an almost unparalleled abundance of crops.”

One or two remarks only will it be necessary to make on this Epidemic, and as bearing on the question.

We are told that the fever “declined in the summer of 1827, and disappeared in autumn.” That is, it declined before any harvests could have been gathered in. Certainly before food could have had any influence. When I come to inquire closely into the matter, I find that this was really the fact. This Epidemic had declined actually before the summer set in at all. “In the beginning of March in the present year (1827) a *rapid and unexpected diminution* of fever had taken place, and the decrease has continued without interruption to the present time, May 12th.” “On this day, May 12th, the number in hospital is only 185, a number which

* The record alluded to above is a map of Ireland, with the names of the several towns, and the exact months in which the Epidemic broke out in each place. It is a most valuable document, though strange to say it has not been noticed by the author of the pamphlet at all.

† One of a general character, and which tends to show how wide spread are the causes of Epidemics, may be noticed here; viz., that in the year 1817, fever prevailed very extensively in different parts of Italy. It also existed in Scotland and England. The following passage, taken from “Bateman on Fever,”—page 19, and speaking of London, is worthy of notice: “It is rather singular that this district, (St Giles’) proverbially the receptacle of beggary, should have remained nearly free from the Epidemic till the month of November 1817.”

scarcely exceeds the usual average." This passage taken from Dr. O'Brien's Report of the Cork-street Hospital, for the year 1827, page 15, shows to a certainty that this Epidemic had begun to decline materially in the spring of the year, so much so, that in May the amount of fever scarcely exceeded the usual average."*

There are two other points worthy of observation connected with this Epidemic, and which must have escaped the notice of our author. The first is, that the seasons of the year 1826 were very unfavourable to the general health of the people. I quote again from the author alluded to above. "The seasons of the year 1826, were such as all testimonies, historical and traditional, concur in describing as unfavourable to public health in Ireland, viz.: a cold and dry spring, an intensely hot and dry summer, a variable autumn, and a severe and inclement winter. The summer in particular exceeded in heat and drought all former seasons which stand recorded in our imperfect natural history." Were I engaged here in investigating the causes of this Epidemic, the facts just stated would be placed in the very first rank, but my business at present is entirely of a negative kind.

The second point is one to which I would beg particular attention. It is this. *The epidemic fever of 1826-27, actually subsided while the wants of the people were as great as when it commenced.* The following remarkable passage is taken from the report already quoted from, page 15.—"The author before he closes this part of the report, feels it incumbent on him, as a duty he owes to truth, lest too great a stress should be laid on public distress and starvation as the sole cause of fever, to state that at this moment, when this malady seems on the eve of becoming extinct, the complaints of distress and want of employment are to the full as loud as at the commencement of the Epidemic, and provisions are dearer."† If this be not the very strongest proof of the trifling part that want plays in the production of Epidemic fever, I know not what is, and I cannot help coming to the conclusion, that the facts connected with this one Epidemic, are sufficient to upset the entire theory.

The next and last Epidemic which remains to be noticed, took place in the years 1836-37. It also, like several of those already spoken of, was accompanied by scarcity, which took place in the autumn of 1836; but also, like some of them, it will be found, on investigation, that fever had considerably increased previous to the

* This important fact of the decline of the Epidemic in the spring of 1827, is also confirmed by the following passage from Dr. O'Rearden's able report of the hospital, for the year 1827; "The epidemic of 1826 continued in force during the months of January, February, and part of March 1827. It began to diminish before the close of the last mentioned month, and terminated early in May."

† The author states in another part of this report, that he took some trouble going through the Liberties of Dublin, for the express purpose of ascertaining the point.

actual outbreak of the Epidemic itself. In the note* below it may be seen, that in the year 1834 sickness had begun to increase, and from more particular inquiry, I find it was in the latter part of the year it did so. It then continued to increase through the years 1835-36-37; during the last two of which the Epidemic attained its maximum. This Epidemic was remarkable for affording a greater number of cases of pure typhus fever than any other on record. "In December, 1836," writes the gentlemen already quoted, "and for several months previous, typhoid fever predominated beyond all former observation. Among my own patients a greater number of instances of unmixed typhus of the very worst description occurred, than I recollect to have seen for several previous years." Dr. O'Brien also confirms the same fact; and speaking of the great mortality, says:—"I regret to state that it has been much greater in the Fever Hospital, than at any former period, since the foundation of the institution." The peculiar character of the fever during this Epidemic, and also the greatly increased mortality, are points well worthy of notice in the consideration of our question. Will want account for these varieties?

I have now reviewed, as briefly as the subject admits of, the several Epidemic fevers which have been advanced in proof of the position, that famine is their paramount cause in Ireland. The result of the investigation has been amply sufficient to satisfy my own mind that not one of them affords the desired proof. For it will have been observed that each, when fully investigated, had circumstances attendant on them, which it is very difficult, if not impossible, to reconcile with the theory proposed. It may be well to recapitulate some of the leading facts. The years 1725-26 and '27 were years of scarcity, yet no fever resulted. It began, indeed, in 1728, and continued to 1731; but the year 1729 was one of abundance, yet the Epidemic did not cease; though, according to the theory, it ought to have done so. On the contrary, it attained its maximum intensity in 1731. Lastly, the historian of this Epidemic, speaking of its several causes, expressly mentions one of them to have been an excessive use of animal food.† In the next

* The following numbers, showing the applications for admissions to the Cork-street Hospital, during six years, commencing in 1832, are taken from my friend Dr. G. A. Kennedy's able Report, for the years 1837-38.

1832 Patients applying,	. . . . .	3957
1833 " "	. . . . .	3704
1834 " "	. . . . .	5172
1835 " "	. . . . .	5906
1836 " "	. . . . .	7558
1837 Tents erected	. . . . .	9508

† It is but right to observe that Rogers is not the only writer who has attributed fevers to an excessive use of food. Several others have done so likewise.

great Epidemic of 1740-41, we have positive proof that fever existed to a greater extent than usual, before want of food was experienced at all. And we have also proof of a still more striking fact, viz.:—that the Epidemic which had commenced in the autumn *subsided during the winter*; though actual famine then existed to a very great extent. It is true it burst forth again in spring; but its subsidence at a period when famine must have been on the increase, is the point to which I would call particular attention.

The great Epidemic which prevailed in, and previous to the year 1800, also affords points worthy of notice. Thus there is ample evidence to show that fever existed to a very considerable degree in the summer and latter end of 1797, and the beginning of 1798; and this was not amongst the poorer classes only, but *simultaneously* it had broken out amongst the troops scattered over the whole country. Any one reading the history of these years must also be struck with the variations which occurred in the health of the troops; and this quite independent of any circumstance in which want of food could have had any share. In the next Epidemic of 1817-18, we find that fever had been on the increase for some years previously; that in the year 1815 (one of great abundance) this was very marked; that these circumstances occurred in different parts of Ireland; that in the same year (1815) there were more patients admitted into the Cork-street Fever Hospital, Dublin, than in the year 1817, which was the year following the one of greatest scarcity; that though there was a better crop in 1817, than the previous year, still the Epidemic continued to increase; that it reached its maximum of intensity in the year 1818, which was a year of the greatest abundance; and still in the following year the amount of sickness was greater than any previous one, with the exception of 1818. The point most worthy of notice in the Epidemic of 1826, is the fact, that it subsided, while distress still continued, and provisions were actually dearer than when the Epidemic began. Lastly, in the years 1836-37, we again find that fever was on the increase before any distress occurred; that the weather was of a nature which has ever been injurious to health in Ireland; that the kind of fever which appeared presented a malignancy much beyond other Epidemics, and that its mortality was much greater.

Such are the leading facts of the several epidemic fevers which have occurred in this country, within the last 120 years. To any one contemplating them, it will, I think, be obvious, that the theory which makes famine their paramount cause, does not derive support from them. There is a want of uniformity which must strike every one. It is quite true, indeed, that famine, or at least want, was present during some period of each Epidemic: but granting this, it by no means follows that the famine was therefore the paramount cause of the fever. Some of the facts stated are totally incompatible with this theory. Thus the subsidence of an

Epidemic, at a time when want existed, or was even on the increase, cannot be reconciled with it. A theory, too, should be able to explain the several circumstances of each particular case. Now, how will the theory we are discussing explain the fact which occurred in so many of the epidemic fevers already alluded to, viz.:—that before want was felt, sometimes years before, fever was observed to have been very much on the increase.* I may be, and confess am unable to explain this fact; but, at the same time, I cannot understand why the cause, whatever it may be, should not go on till the fever reaches the height of an Epidemic; and that, without any want existing at all; and I think, those who differ from me in opinion, are called on to explain why this may not be the case. If fever increase up to a certain extent, want of food not existing at all, and that such occurs is beyond dispute, why may it not go on till it becomes an Epidemic? Why may not the cause, which first made the fever increase, continue? It would be going rather too far, I conceive, to say that fever may increase to a certain point; but, in order that it can become Epidemic, a new cause, viz.: famine, must then exist. This would be contrary to all probability; and what is of more consequence, it is contrary to all our experience on the matter. We have seen that fevers arise, and become Epidemic in turn, over the entire globe; and this where want has not existed at all. We see such in England, and Scotland too; and yet, with these facts before our eyes, we are told that Ireland is an exception; that if there be no famine there will be no fever; and that however other circumstances may vary, famine is never absent. We see exactly the same series of phenomena in this country which attend on “an Epidemic constitution” elsewhere; and still we are taught not to expect the same results. Abroad we see fever gradually reaching its acme; taking months, or it may be years, to reach this point; and doing so quite independent of the supply of food; but when precisely similar phenomena take place in Ireland, they must then be set down to famine as their

* It must not be understood, from what is stated above, that the number of fever patients fluctuates during “Epidemic seasons” only. On the contrary, the numbers vary much in other years; and this, let it be observed, when the general conditions of our poor is not different the one year from the other; at least as far as can be made out. It is unnecessary to give numbers here in proof of this. But it may be stated, that in the years 1839, 1840, the applicants to the Cork-street Hospital were more than double those in the years 1842–43. Examples of a similar kind could be given without end. But what is still more remarkable, a particular month of a certain year may afford such a number of cases of fever as to call for special notice. An occurrence of this kind took place in December, 1844; as the following sentence, taken from the records of the Institution already spoken of, shows:—“The Committee observing that the numbers in the Hospital have increased very much during this month, request to know from the physicians if they have any special remark to make on this subject to them.” The answer of the physicians need not be given. *The increase of fever, however, was but temporary.* How occurrences of the kind just spoken of can be reconciled with the theory which makes famine the paramount cause of this disease, I must leave others to determine.

paramount cause. I cannot but think, if such were really the case, it would be marvellously strange, for Ireland offers no peculiarities in respect of Epidemic diseases, that I can make out. All other diseases which have from time to time been Epidemic in this country, run the same course as elsewhere. Smallpox, dysentery, measles, scarlatina, hooping cough, influenza, erysipelas, inflammation of the lungs, croup, and other diseases, together with epidemic diseases of cattle, appear amongst us as they do in other countries. Let it be observed, too, that these diseases arise, progress, and subside, without any obvious cause that we can detect. It is quite true, indeed, that they almost all belong to the class of contagious diseases; but contagion will go but a very short way in explaining their progress. It will not explain their appearing in several places at the same time; nor is it easy to understand why they subside after a certain time, though the contagious property still continues in full force. Indeed, it is perfectly well known that the very same disease will, at times, exhibit the most contagious properties; and again be comparatively innocuous in this respect. One of the diseases named above shows itself in a manner that cannot be mistaken: I mean what is known under the name of influenza. This affection, which speaking generally, may be said to consist in a feverish cold, has on more than one occasion, overspread a country in the course of a single week; a striking example of some most wide-spread cause existing, which puts contagion, or any other known cause entirely out of the question. It may be observed too, in passing, that in some of the Epidemics of influenza, many of the cases ultimately become fever. Keeping all these facts in mind, and recollecting that all the other diseases which may become Epidemic in Ireland, run a similar course to what they do in other countries, I must say it appears to myself very difficult to understand why fever, and it alone, should prove to be the exception. It is quite obvious to any one who has made inquiry into Epidemics in general, that there are general laws influencing them over the entire globe. What these are, we are, even now, very much in the dark about. But to suppose that in Ireland exceptions to these laws are to be met with, is, to say the least of it, in the highest degree improbable, and it certainly is unphilosophical. The Great Author of Nature does not so work.

To proceed. It has been observed, in connexion with all our epidemic fevers, that they have been preceded or followed by some disease which then has taken on an unusual degree of severity; at times become Epidemic. In the pamphlet notice is taken of this fact;* but while it is mentioned as a proof of the possibility of our being now visited by an epidemic fever, the author offers no reason to account for it. It is quite obvious that his theory will not do

* Smallpox prevailed much during the year 1845.

so. There can be no connexion between the want of food and the spread of such a disease as smallpox. Hence I take it that the theory must be imperfect, because it fails to explain a fact which has ever been present, and which has been noticed by every one investigating the subject. There is one disease, however, which calls for more particular notice here, as being, I believe, always present at one period or other of our epidemic fevers; I allude to dysentery, which may well be described as the inseparable companion of our fevers. There can be no doubt, indeed, from its constant occurrence, that the same general causes which engender fever, have a tendency to induce this disease. Nor is this an opinion of my own, for I find almost all authors who have written on the subject expressing themselves to the same effect. Hence we must conclude that if deficient or unwholesome food is of such paramount influence in the production of our fevers, it is equally so in causing dysentery; that is, it is a paramount cause of two distinct diseases, which, as it appears to me, must take away much from its specific influence on either. It is rather strange that there is no notice whatever taken in the pamphlet of the constant occurrence of dysentery with our epidemic fevers; but it is quite clear that any one who took up the idea, might argue in precisely a similar way about dysentery, as has been done of fever. Some remarks in connexion with this part of the subject will be made farther on.

An argument has been advanced on the opposite side of the question, which requires some notice here. It has been argued that the great similarity of the several Epidemics, points necessarily to some common cause. "Like effects," writes our author, "generally follow like causes. The Epidemics which appeared at different times, during a space of one hundred years, have presented the same characters. It is reasonable to infer, that they owe their origin to some common cause." Now this is a line of argument which may very fairly be called in question. It is quite true indeed that the leading features of each Epidemic were the same; but it is equally true that there existed in many of them, points of difference, which no common cause, such as famine, will account for.* Without entering too minutely into the point here, it is enough to state, that I find recorded, that a great number of the cases of one Epidemic were affected with jaundice; in another, mortification of the extremities was very frequent; a third required stimulants and wine from the very onset of the disease; a fourth called for bleeding; a fifth had spontaneous bleeding from the nose in a great number of those attacked; other points of difference too might easily be added. There is one however of a very marked character which may be

* "Fever in this Island," writes Dr. Graves, "exhibits a great variety of character, and even during the same Epidemic, remarkable differences are observable."

noticed here. The expression "spotted fever," is one in very general use. It denotes that at a certain period of the disease, spots of a specific character appear on the skin. Now in some Epidemics nineteen out of every twenty cases have exhibited these spots: while at other times it has been the very reverse. It is unnecessary here, to do more than refer to the fact, known to every medical man, that the particular season of the year causes very marked modifications in the character of an epidemic fever. I have only to add that if the paramount cause of our fevers be famine, it has truly much to answer for.

Speaking of the seasons reminds me of a point which may as well be noticed here, as elsewhere. After the sketch of the several Epidemics given in the pamphlet, the author goes on to say: "Even a rapid glance over the table, as I have arranged it, will show, that however all other circumstances, as time, season, climate, might have varied, this one condition, famine, was never absent." It might readily be inferred from this passage, that famine was the only agent which was constantly present in each Epidemic. Now a glance, and a very rapid one too, is quite enough to show the reader, that famine was not the only agent which was constantly present, for it will be observed that the seasons were very irregular; many of them damp and inclement; and others too hot and dry; and this state I believe was more or less present in each Epidemic. It will be observed that I am not now engaged in investigating the causes of epidemic fevers; but merely in stating the fact, that irregular seasons were as constantly present in each, as famine itself. Hence on the author's own mode of reasoning, we have a second paramount cause of fevers; if such an expression be not absurd. No one at the present day can venture to deny that the changes of the atmosphere exercise an immense influence on the physical health of the community; and it may be mentioned here what will be taken up more fully again, that all the leading authorities attribute more power, in the causation of Epidemics, to atmospheric changes, than to any other single cause. It is rather strange that no notice whatever is taken in the pamphlet, of the very obvious point to which attention has been directed.

To proceed. If it be granted for a moment that famine is the paramount cause of our epidemic fevers, let us see the conclusion to which it will lead; for then there must be a certain proportion between the cause and the effect. The greater the famine, the more severe must the Epidemic be; and its mortality must, by so much the more, be increased. And what is true of the whole, must be equally true of the part, or of the individual. Hence the conclusion is irresistible, that when an epidemic fever spreads, amongst both the poorer and the wealthier classes, and that the former have also been exposed to the horrors of famine, their fevers must be of a worse character; or in other words, must be more fatal. Un-

fortunately, however, for this argument, it is directly opposed by facts. It is quite notorious that fever is a much more fatal disease amongst the wealthier, than the poorer classes. Statistics, on a very extensive scale, have shown that the mortality is about one in twenty of the latter; while, in the former, it ranges about one death in every four or five cases. Some have made it so high as one in three. Taking it, however, at the most favourable calculation, that is one in every five, it makes the disease more fatal by fourfold, in the one class than in the other. This fact is stated in the pamphlet; though how it is to be reconciled with the author's views, I am at a loss to determine. To my own mind this one fact is enough to upset the entire hypothesis. And here, while alluding to the author's views, it were much to be desired that he had given us some more specific ideas as to the *modus operandi* of famine in causing fevers. This is really the *gist* of the entire question; though the author avoids it. He thus expresses himself at page 10:—"It matters little for the end to be attained, the prevention or removal of fever, whether the cause (famine) which shall be proved to be paramount in its production, be, in the language of medicine, a proximate or a remote, a predisposing or an exciting cause." Now with all deference for the author, it does make the greatest difference. Of both predisposing and exciting causes of fever there are several; and it strikes me that when particular views are put forward, such as are to be found in the pamphlet, we have a right to expect something definite. It is not enough for an author, who would join indissolubly famine and fever, to state that they are so joined, in vague and general terms. The reasons why they are so, we had every right to expect; the more so, as the particular opinion itself is one, which, to a considerable degree, is opposed by all the leading authorities.*

* The following names and passages might very easily be added to; but it appears to me quite unnecessary to do so.

Hippocrates ascribed Epidemics to a something in the air, which this great man called "To theion."

Sydenham ascribed them to emanations from the earth, which were carried through the air.

"That famine has no direct influence in producing epidemic fever; that these evils are not necessarily connected as cause and effect, can scarcely be denied." And again, "Famine must therefore operate indirectly, and as a concurrent cause only."—Barker's Report of Cork-street Hospital for 1818, pp. 40, 41.

"The increase or diminution of fever in Ireland, arises from some unknown general atmospheric or climatic influences."—Graves' Clinical Medicine, p. 45 "In my report of the fever which devastated the west of Ireland in 1822, I advanced the opinion, that such Epidemics are brought on by a great dearth of provisions, and their unwholesome quality. These are no doubt aggravating circumstances, but that they are not the sole, or even the chief causes of typhus Epidemics, is evident from what I have since frequently witnessed."—Idem page 41.

"The prevalence of famine, however, is by no means an essential pre-requisite either for the generation or spreading of fever."—Harty's Historic Sketch, p. 166.

Dr. Grattan after giving some of the statistics of fever thus proceeds: "The first, and

The remarks just made lead one naturally to some such questions as the following, being here put to myself; if you deny, then, that famine is of paramount influence in causing our epidemic fevers, what effect does it produce? Has it no influence? What effects result from bad or deficient food on the human frame? The answer to the last question (on which the whole point turns) though apparently simple, is in reality a most complicated problem; the complete solution of which I confess myself quite unable to afford. The reasons are obvious. There are always a number of agents, in more or less active operation, which exercise a marked influence on the human body; and to isolate the effects of any one of them, appears to be impossible. Where the one ends, and the other begins, cannot be defined; while experiment—it is obvious—is entirely out of the question. Amongst the agents alluded to I may mention, climate—the seasons of the year—the occupations of the people—their living in the city or the country—their general habits and modes of life—their clothing—their attention to cleanliness, and ventilation, contagion, *etc.*

Let us add to these mental causes, such for instance as great excitement; or it may be apathy, and deep depression of mind. And to all let there be added the different effects resulting from the several kinds of food when injured; or in deficient quantity; and I think it will be conceded, that the specific effects of this agent on the system, is a most complicated problem. Probably it may be well to illustrate, by a few examples, the point I wish to establish. A people are being fed on bad food; now the effects of this will be

what I conceive to be a most important inference is, that fever may prevail indifferently, and to a great extent, in years favourable to the productions of the soil, as well as in those in which the harvests have almost entirely failed.”—Report of Cork-street Hospital for 1819, p. 22.

“Epidemics have their assigned laws. They observe stated seasons and periods of rise, increase, and decline.”—Handcock’s account of Epidemics, *Cyc. of Pract. Med.*

“But of famine, or unwholesome food alone, it may of truth be predicated, as of other individual causes, that it will not produce a pestilence.”—*Idem.*

“From my own, as well as the observations of others, who have thought seriously on this subject, I am most inclined to fix the causes of all Epidemics, in that universal fluid: I mean the atmosphere that surrounds us.”—Rogers on Epidemics, p. 7.

“Fever, as when it occurs in an Epidemic form, will originate without any known cause, and then its origin is commonly attributed to certain altered states of the atmosphere.”—Report Belfast Fever Hospital, by Dr. Mateer, in *Dublin Medical Journal*, vol. x., p. 33.

“Are poverty in food and raiment, mental depression, and exposure to wet and cold, the sources of fever? If these were in themselves sufficient, we should be led to expect that in proportion to the public exigency, we should find fever existing. It is needless to observe that this relative condition is not in strict accordance with our experience.”—Report of the Limerick Fever Hospital for 1837, by Dr. Geary.

“Can we then,” asks Dr. Grattan, “give our assent to the proposition, that fever is principally caused by a want of wholesome food? Those who maintain this doctrine assuredly take too limited a view of the subject, and overlook many other circumstances to which Epidemics may, with greater justice, be ascribed.”—Report quoted already, page 24.

much modified according to the state of the weather for the time being. Should it be genial, the bad food will be much longer in producing its usual effects on the system; and in favourable cases, may not cause disease at all. Of this latter, more than one striking example has been given in an earlier part of these remarks. On the contrary, should the weather be very unfavourable to health, at the same time that a people are using bad food, sickness will rapidly ensue. The same remarks apply to whether famine exist in summer or winter; spring or autumn. It is quite obvious that these are agents entirely beyond our control; and yet they act with as great certainty, and, I believe, with much greater frequency, than food itself.

In this way the whole list of agents might be gone through; and there would be nothing easier than to show, that, according as a people were employed, or were well or badly clad, were attentive to cleanliness or ventilation, or otherwise, according, I say, as these were in force or not, would the effects of bad food—which we have supposed to be constantly existing—be modified. Allusion, too, has been made to mental causes, as capable of modifying the effects of this agent, and my strong impression is, that they have not been allowed their proper influence. Let a people, like an individual, be buoyed up with hope, let them be kept in a state of mental excitement, and famine, with all its horrors, may to a certain degree be kept in abeyance. Or let them be depressed, let that hope be deferred, which maketh the heart sick, and disease will come but too soon.*

These remarks might be pursued much farther, but I must hasten on. Enough has, I trust, been said, to show the very difficult nature of the question proposed, and also to demonstrate beyond any doubt, that there are constantly at work a number of agents, any one of which, to say nothing of all, is capable of producing a marked difference in the effects of bad food on the system.

But though it appears to me impossible to isolate the effects of any one of the agents so often alluded to, bad food amongst the rest, still, it must be admitted some results follow from its use, which—in as much as they are constant—may fairly be set down to it. An individual obliged to use bad food soon begins to lose flesh; he gets pale and exsanguine, his bodily strength fails, and his mind becomes depressed. Should it be pushed still farther, he becomes thinner and thinner, and ultimately he dies of inanition; in fact of starvation; of which we have unfortunately had but too many examples of late. *It is my firm conviction that, with our present knowledge, we are not justified in attributing any other effects to the use of bad food than what have been just stated.*

* It is quite unnecessary here to do more than allude to the well-known fact, that a retreating army is invariably a sickly one.

For if we take, or rather try to take, one step farther, we at once become involved in endless difficulties. Thus, for instance, should any one ask: does not actual disease follow the use of bad food? Do we not see it? We do. But then let it be particularly observed, that it is not one disease which follows, but several. In Ireland the most constant disease, as far as I am aware, and where bad food has been used, is dysentery; then fever, presenting such a variety of peculiar symptoms, that it is utterly impossible to allow that bad food can have had much to say to the matter. Then possibly dropsy. Then when the use of bad food has not been carried just so far, purpura, dyspepsia in its thousand forms, scrofula in endless variety, together with several diseases of the skin. Then, if we look abroad, we see a particular district of France, in which rye, the food of the people, occasionally becomes diseased, and should it be used in this state, it is well known that it will be followed by a peculiar form of gangrene of the extremities. In other countries, again, a disease of a remarkable kind, known under the name of *Beri Beri*, has long been traced to the use of bad food. Or again, while the quantity of the food is sufficient, its quality is bad, of which, probably, the most marked instance on record is the disease which was, for so many years, the scourge of our navy; I mean the sea scurvy; but which an improved knowledge has now entirely banished.* Other instances might be given of a similar kind, but what have been adduced are amply sufficient for my purpose.

It has been just stated, that dysentery is probably the most frequent disease which follows the use of bad or deficient food in this country; and I believe it to be correct. Without, for a moment, wishing to tie myself to any limited opinion of the sort, I think a much closer connexion will be found to subsist between these two, than between bad food, as a cause, and fever as a consequence. As a case in point, I may here direct attention to the celebrated siege of Derry, where, it must be admitted, that the sufferings of the besieged were as great as any other example history affords.† And, yet, what was the disease from which they chiefly suffered? Was it fever, which, according to our author's theory, it ought to have been? No. It was dysentery. Fever, indeed, is mentioned; but dysentery was the great and serious disease which weakened the garrison and thinned their number. Through the whole of Walker's "Diary," it is spoken of first, and when any little supply of food was found—for they had a common stock—it is expressly mentioned as being most useful, because it improved those affected with dysentery. As far as a single instance

* This great improvement is due to the late Sir Gilbert Blane. It has saved Great Britain more men, than ever she lost by her enemies.

† So great was the scarcity of food, at one period, that a mouse sold for six-pence, and a rat for a shilling, while a pound of tallow brought four-shillings. The difference in the value of money, too, must not be forgotten, between that and the present time.

can go, this celebrated siege is fatal to the theory which makes famine the paramount cause of our fevers.

It will be recollected that I am now engaged in showing what difficulties beset our path, the moment we attempt to connect the use of bad food with any special diseases. We have seen that it is not one, but several, which have been attributed to this one common cause. If bad food were the paramount cause of *any one of them*, it should—as I understand it—be constant. But it certainly is not so. Why such varied results should arise, or rather apparently arise, from one cause, we are entirely ignorant of, but the fact itself is indisputable.*

If we suppose, however, that these are the only difficulties in the question, we would take a very erroneous view of the matter. For what will be said, when I state, that scarcely a single disease has been mentioned as resulting from the use of bad food, which has not also occurred when this cause did not exist at all. And this is the truth. Of fever, several examples have been given in an earlier part of this Essay, which need not again be repeated.

In a similar way, all the diseases might be gone through, and examples given of their occurrence in the midst of plenty. Let us add to all this, that many authors have attributed, some of them, including fever, to the use of too much food; and I think difficulties enough have been stated, to puzzle the most inquiring mind, and to convince any one that, with our present knowledge, we are not justified in attributing more to the use of bad food, than what has been already stated. And, that, of course we cannot connect, as a necessary cause, the use of this agent with the production of fever, either in this country or elsewhere.

But if famine be not of such moment, if it be not of paramount influence in the production of our fevers, what part does it take? or in what light is it to be viewed? To answer these questions it will be necessary to advert to the general causes of fever; in doing so, however, I wish it to be distinctly understood, that what is about to be advanced must only be received as an approximation to the truth. Much yet remains to be learned on this subject; which, however, for my present purpose, will only be glanced at here; to enter into it fully would far exceed my present limits.

Writers on fever have usually divided the causes of the disease

* As an example of the apparent contradictions which surround the entire subject, the following passage may be given. It is taken from a work published in 1836; entitled, "Twelve months campaign with the British Legion." By an eye witness.—"The English and Scotch suffered extremely from typhus, while the Irish Brigade, composed of the 7th, 9th, and 10th regiments, enjoyed a perfect immunity. In spite of all their hardships, the severity of the winter, the badness of rations, and total want of pay; the Irish lived, thrived, and grew fat, as if in the midst of clover; such are the advantages of misery and starvation at home.—And again: "The Irish Brigade suffered little or nothing from disease, although it was not better off for provisions, or quarters, than the rest of the force."

into two kinds: one the pre-disposing, and the other the exciting. One which prepares or makes the constitution liable to take the disease; the other, which actually engenders it. As a general rule, it is sufficiently easy to distinguish the one class from the other; but again it happens that they approach so closely as to render it difficult to say to what class they belong. Of the former, the pre-disposing, there are several. Of these, as a whole, it may be said, that they are such as have a tendency to lower the general standard of health. They keep it, in fact, below par. Take, for instance, the following:—A people in the habit of living in small, close, ill-ventilated apartments; very frequently shut out from all light of the sun; or else in cabins where both wind and rain have free entrance and exit; the same people being badly clad, with no change of raiment; not aware of the importance of personal cleanliness; with a scanty supply of fuel; frequently with a deficiency of food; at times subject to great depression of mind; and always subject to the influences of a climate remarkable for its sudden variations; take, I say, all these, and we have before us the great pre-disposing causes of our fevers; causes which, I regret to say, are but too rife in this country. We must not, however, whilst regretting their existence, forget that they are only pre-disposing causes. That no single one will cause the disease; but that two or more must concur to that end; and that the greater the number which happen to exist at any one given period, the greater the *probability* will be that fever will break out. I say probability; for it is not by any means a certainty; as epidemic fevers have repeatedly occurred for which no assignable cause could be made out.

Of the immediate or exciting causes of fever, there are also several: such as emanations from decaying animal or vegetable matter; a more than ordinary crowding together of a number of persons; such as may take place in goals, on board ship, in work-houses, &c., &c.; contagion; miasmata; great mental or bodily exhaustion; mental anxiety; and exposure to cold or wet.

Such are the chief pre-disposing and exciting causes of our fevers. A glance at them will show the part which, I believe, it is correct to attribute to famine. I would place it amongst the pre-disposing causes; amongst those which have a tendency to lower the bodily health, so as to keep it below the healthy standard. *As to any paramount and single cause of fevers, I know of none.* I am not aware of any belonging to either of the classes alluded to, which could be set down as such. Famine cannot certainly be so named. For then it would be constantly present, which it is not; and there would be a definite and certain result, which, as shown in the foregoing pages, has not been found to be the case. Let it be observed, too, that this view of the question is quite in keeping with the point which must never be lost sight of, viz.:—that epidemic fever may

visit us, as it has often done elsewhere, and any one of the pre-disposing causes be wanting. In a word, pre-disposing causes are such as are not necessarily present in every instance; and of this number is famine. If it happen to exist, it will pre-dispose to the disease, and it must add to an evil already existing; just as has happened when the season was very wet and inclement, or when the people were deprived of their usual supply of fuel. If this be not the proper view to take of the subject, I cannot understand why our people should be dying in such numbers of starvation. Why do they not die of fever? It will not be maintained that the paramount cause, famine, has not existed to a sufficient degree. Here we have numbers of wretched beings suffering from want in all its horrors; yet they die of starvation. Why then, I again repeat the question, does not fever ensue? At some period or other of their starving existence the want of food, according to the theory impugned, ought to have engendered the disease; yet they die of starvation. The truth is, that want of food, as I have endeavoured to prove all through this Essay, is not a necessary pre-requisite of fever, either in the individual or amongst a people; and that, considered as a single cause, it will not generate fever; a fact which every days' experience is, at the present time, incontestibly proving.

The remarks just made may probably be expressed in another way. Thus, if I were asked:—Does any one of the pre-disposing or exciting causes exert, or at least appear to exert, a greater influence than any other in the production of fever? Yes. We have a number of facts, which prove beyond any doubt, that if a number of individuals be kept crowded together in a small, ill-ventilated apartment, for a period of time, which is, however, very variable; that amongst such persons there is the strongest probability that fever will break out. Several examples have already been given of this; and I may here again refer to the valuable work of Dr. Harty. This gentleman has been physician to the goals of this city for many years; and he states, that when the cells at any time happened to become over-crowded, fever invariably made its appearance amongst the inmates. That in point of fact the disease was engendered under his very eye; and that as surely as the proper means could be adopted to remedy this state of things, the disease was checked in its progress. I cannot conceive stronger evidence than this to show what little influence famine can have in the production of our fevers. For, let it be observed that this agent, in the circumstances alluded to, did not exist at all.*

Besides over-crowding, there are two of the immediate causes of fever which frequently, though not always, play a prominent part in

* Hence the conclusion appears to be certain, that there exists a something, and in this country too, which exercises a much greater influence in the causation of our fevers, than famine; and consequently this agent is not—cannot be—their paramount cause.

the production of our Epidemics. One is contagion; a cause to which some of the ablest writers have attributed the spread of epidemic fevers. At times, there is no doubt whatever, but that it is a very powerful and wide-spread cause.* As was already observed, contagion appears occasionally to take on very active powers, and hence fever spreads with great rapidity. A similar occurrence exactly takes place with what are known as the specific contagions; such as measles, smallpox, and scarlatina. These poisons always exist, but it is only at stated periods that they will spread so as to become Epidemic. Granting, however, contagion to possess its greatest powers, it will not account for what has been observed on more than one occasion, viz.: the outburst of fever over the entire country, and almost at the one time. No contagion will account for this; and by the way, it would also be most difficult to attribute it to want of food. To suppose that famine should reach the same point in a great number of places, and at the same time, so as to cause fever to appear simultaneously at these places, would indeed be to strain probability to its utmost limit. The Epidemic of 1817-18 afforded a very striking example of this simultaneous outbreak of fever; as may be seen by referring to the map already spoken of. But it is not fever alone which thus suddenly overspreads an entire country. I have already stated that the disease known as influenza has frequently done so, and if possible in a still shorter period of time. To myself it appears just as difficult to account for the sudden spread of the one disease as the other; and with our present knowledge, I do believe it is better to avow our ignorance of the matter.

Cold is the last agent to which attention will be called for a moment. It is, in this country, one of the most frequent of the immediate causes of fever. Amongst the poorer classes there is nothing more common than to trace the disease to it. A working man gets wet clothes, and remains in them for some hours; sickness ensues; and this is indeed but too apt to run into fever. This agent, however, must not be considered as having at all a specific character; but only, that in "Epidemic seasons" it is almost a certain one to cause fever.

Thus much it has appeared necessary to say of the causes of our fevers. Much more might have been advanced; but enough has, I think, been said to show that, whether we look to the pre-disposing or exciting causes of fever, we find some which throw famine into the shade; and which, though I would not call any of them a paramount cause, for of that, I believe, we are entirely ignorant, certainly appear to deserve the name better than the one to which it has been given, viz., famine.

* The advocates for contagion however, ought not to forget that there are diseases which at times become Epidemic, in which this agent can have no influence whatever; such as pneumonia, croup, *et cetera*.

And here I would notice the subject under a point of view which has been as yet only glanced at, but which, as it appears to me, is the correct way to consider the whole matter under discussion; that is, to look upon both the famine and the fever as the result of one common cause: a cause which, though we be entirely ignorant of its nature, is evidently of a much more wide-spread character than any physical agent we are at present acquainted with. This is the "Epidemic Constitution" of some authors. The something which so many writers have considered to exist in the air. The "to theion" of Hippocrates. This it is which we see by its effects to be at work for months, and even years before it reaches its acme. This causes epidemic diseases, and may or may not draw famine in its train. Hence we have some explanation of the apparent anomalies which famine and epidemic diseases so often present. In many instances the famine precedes the Epidemic; in others, the disease takes the precedence; while in a third they appear simultaneously. This explains why fever may increase without any famine; and on the other hand why it may cease while the latter still exists. No author, as far as I am aware, has treated this part of the subject in the same comprehensive way as Webster an American. This able writer did not belong to the profession; but he has collected an immense number of facts, which, to my mind, place the matter in its true light. "Wherever," writes this author, "there exists a general cause in the elements unfriendly to the health of the human race, and at the same time to the growth and perfection of grain, pestilence and famine may be companions of each other; or they may reciprocally follow each other, according as the general cause operates first on vegetables, or on mankind. In such cases superficial observers are apt to suppose one to be the cause of the other, when, in fact, they are both the offspring of a common cause." This same writer has likewise put, in the clearest light, the wide range which epidemic influence exerts. He has shown, that when such reigns it is not confined to this or that country; and that should we attempt to limit our views in this way, we must inevitably be led into error. Thus, should an epidemic fever rage in Ireland, there is every probability that it has been preceded, accompanied or will be soon followed by similar disease elsewhere; and to attribute it, in this country, to any such cause as famine, when the same disease exists perhaps in England, without famine, is clearly an erroneous way to view the subject.* All the more wide-spread Epidemics to which attention has been already drawn, afford proof of this. In the years 1740-41 we were visited by a formidable Epidemic; but then it had been *preceded* in certain parts of England by fever, which

* The Saunder's Newspaper for 16th April, 1847, affords an example of a case in point. In Iceland the potato crop of the past year has been unusually productive. The same account however goes on to state that the inhabitants have been nearly decimated by measles, dysentery, typhus, and rheumatic fever.

prevailed to a great extent, and was of a very bad character. It is particularly worthy of notice, too, that Huxham, who lived at that period, and is allowed to be one of our ablest medical writers, attributes the fever which then occurred at Plymouth, to imported contagion. But again, the great Epidemic of 1817-18 was not confined to this country. On the contrary, at the period when fever had become general over Ireland, at that very time, it is perfectly well established, that fever *suddenly* increased in Edinburgh and Glasgow; in Manchester, London, and other parts of England. It has been already stated, that during this year likewise, this disease prevailed extensively over different parts of Italy. I must again repeat, that this outbreak of fever, within the same month, and in different places of England, Ireland, and Scotland, is most difficult, if not impossible, to reconcile with the theory which makes famine its paramount cause.

The remarks just made lead naturally to a consideration of the present time, and some such questions as the following may be asked. What are the chances of our having an Epidemic during this year? As the country has been suffering very severely from famine will we also have pestilence? Without stating anything like a positive opinion on the matter, I would say, that such is much to be feared. We have in the circumstances of the times some facts, which seem to tell, almost constantly, the existence of an "Epidemic Constitution." Thus, in 1843, and part of 1844, I find that Scotland suffered from a very severe, and wide-spread epidemic fever. Since then we have had in Ireland very severe epidemic disease, and of more than one kind too, affecting both black cattle and horses.* Smallpox also has been very rife within the last two years. And now we have famine, and to a fearful extent. All these, however, are greatly increased in moment, when we have in addition signs of actual disease having already appeared. But where is this? And to the answer I would call particular attention. Is it in Ireland? Or is it in England, with its great wealth and well-fed people? It is in the latter country. I find from the periodicals that during the past year (1846) typhus fever has prevailed to a very considerable extent, and in different places. Berkshire particularly has suffered. During last autumn likewise dysentery prevailed in Liverpool. But it is in London that fever has shown itself in the most unequivocal form. For some months past the weekly returns give an immense increase in the article of fevers; an increase which, I believe, has

* As well as I could ascertain, the Epidemic amongst horses was a very severe form of influenza. From some examinations made by myself of cows, the disease appeared to consist in a very intense degree of inflammation of the lungs, and their investing membrane. It was contrasted with the like disease in the human subject, by the co-existence of an immense amount of liquid effusion, and severe inflammation of the substance of the lung. They were in both classes of animals, very fatal diseases. The stethoscope, it may be remarked, afforded me a ready means of detecting the disease in the cow.

not been equalled in that city, since the year 1817.* On a moderate calculation taken from the mortality, the number of persons attacked weekly can be little short of 1000. To this also must be added the fact, that for several weeks past, the mortality in London generally has been much above the usual average; at times even approaching a third more. In other words the season has been a very unhealthy one. On the contrary, from any inquiries I have been able to make about this country, the year 1846 taken as a whole, has been unusually healthy, and free from fever. It will be recollected too, that in 1845, at least one third of the potato crop was destroyed; and in some places it was even worse than this; so much so, that the poor suffered the greatest distress. And yet no fever made its appearance in immediate connexion with this want.† It is quite true indeed that within the last three months we have authentic accounts, of severe disease existing in several parts of Ireland. But then it is not fever only which is the prevalent disease; it is dysentery, and a peculiar form of dropsy. It is also true, that in Dublin fever has increased very considerably within the same period; that is from November 1846, till the present time. Granting however all this to the fullest, it does not shake the fact already stated, that in England there has been more fever during the past year, than with us. Here then is a dilemma which others must solve. Either the people of England have been in greater poverty than our own population; which I presume few will maintain: or else famine is of much less consequence in the causation of fever, than many have asserted. The several facts then just stated when taken together, give a great degree of probability that sickness is about to visit us; and so to add to the horrors of famine, those arising from Epidemic disease.‡

* The following passages are taken from the London Medical Gazette for November and December, 1846. "The deaths from typhus fever have considerably increased; and the mortality is now double the averages."—6th Nov., 1846. "The most fatal and prevalent disease at present is typhus fever."—13th Nov. "Typhus fever is still very fatal."—20th Nov. "Typhus fever is the disease which is now most prevalent and fatal."—27th Nov. "Typhus is still very prevalent and fatal."—4th Dec., 1846.

Up to the present month (March 1847) the mortality is still very considerable; but rather less than at the latter end of last year.

† My friend Dr. Kidd, who holds the Clonlara Dispensary, near Limerick, thus writes to me in February, 1847. "The people here suffered exceedingly in the autumn of 1845, so much so, that we had to enter into large subscriptions, and give them one meal a day, to keep them alive. Notwithstanding I did not perceive any increase of fever that season; indeed, on the contrary, explain how we will, I think there was a general immunity from this disease. The people seem now reduced to the very verge of starvation; as their worn and haggard looks amply testify. When they do get ill they sink at once from affections of the lungs, or diarrhoea; the latter especially."

‡ There is one other point worthy of notice in this place. Many eminent writers, Sydenham amongst the rest, have thought that Epidemics returned at stated periods. Some facts in this country would appear to bear out this opinion. Thus the last three Epidemics of fever have occurred very nearly at intervals of ten years, viz. :—1817, 1826, 1837. The same fact has been observed regarding the plague. (Milroy.)

Before concluding it may be well to give the substance of the preceding pages in the following propositions.

1. That, with our present knowledge, we are not justified in attributing other results to the use of bad or deficient food, than that, in the first instance, it injures the health, by weakening the bodily frame; and if pushed farther, will cause death from pure starvation.

2. That in the first degree, bad or deficient food predisposes to the engendering of several diseases; fever amongst the rest.

3. That should fever exist and famine with it, the latter will aggravate the former, just as a very inclement season, or want of fuel, or clothing, will do.

4. That the proper way to account for the frequent occurrence of famine and fever, at the same time, is to consider them as the offspring of one common cause.

5. That no other theory will account for all the facts of the case.

6. That this common cause, known to authors under the name of an "Epidemic Constitution," is shown usually, by a general increase in sickness, and mortality; by the occurrence of Epidemics amongst the lower animals; by the destruction of vegetable life; by a sudden increase in some of the specific contagions, as smallpox; by marked atmospheric changes; and when this general cause, whatever it be, is very powerful, by the rapid decay of substances, such as silk, cotton, &c., &c.

7. That we are still ignorant of what the paramount cause, and spreading of Epidemic diseases, including fevers, depends upon.

THE END.